

## Newsletter 10 / September 2024 – November 2024

Erasmus+ Capacity Building of Higher Education  
Synergy of educational, scientific, management and industrial components for climate  
management and climate change prevention/ CLIMAN  
619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP

### **NEWSLETTER 10** **September – November 2024**

In this issue you will find news and updates of project partners:

- International Highlight Event 2 - Dissemination and Sustainability Conference of the CLIMAN project.
- Practical Training “Climate Change - Mountain Systems as an Indicator of Climate Change Impacts”.
- Studying of the ecosystems in Kutaisi.
- Students mobility to Akaki Tsereteli State University (Georgia).
- Students mobility to Mykolas Romeris University (Lithuania).
- Formalising cooperation within the project, signing contracts.
- News from partners:
  - KROK University
  - West Ukrainian National University
  - Akaki Tsereteli State University
  - Turiba University
  - Kharkiv National Automobile and Highway University



Synergy of educational, scientific, management and industrial components for climate management  
and climate change prevention/ CLIMAN 619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP

## Newsletter 10 / September 2024 – November 2024

*The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.*

### **International Highlight Event 2 - Dissemination and Sustainability Conference of the CLIMAN project.**



16-20 September 2024 International Highlight Event 2: Dissemination and Sustainability Conference in frameworks of Erasmus+ project “Synergy of educational, scientific, management and industrial components for climate management and climate change prevention/ CLIMAN” (619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP) took place at Batumi Shota Rustaveli State University in Batumi, Georgia.

The project coordinator’s representatives shared the story and challenges of the CLIMAN project, highlighting key events, activities, and summarizing the results and achievements. Ukrainian and Georgian partners presented and disseminated project results, including the development and piloting of climate management modules, modernization of programs, accreditation; regulations, activities and initiatives of the climate management centers; roadmap of cooperation with the stakeholders. They also emphasized the impact of improved qualifications for lecturers and administrative staff, as well as enhanced mobility opportunities for students. Key aspects such as dissemination, sustainability, visibility, and exploitation were also emphasized. International Highlight Event also included the practical training in Machakhela National



## Newsletter 10 / September 2024 – November 2024

Park and participation at students` presentations at Akaki Tsereteli State University in Kutaisi.

The strong CLIMAN consortium, comprising partners from the Netherlands, Germany, Latvia, Lithuania, Italy, Ukraine, and Georgia, demonstrated mutual understanding, shared values, problem-solving abilities, and support throughout the project. This collaboration lays a solid foundation for new perspectives, opportunities, and initiatives that promise continued fruitful cooperation in the future.

Many thanks to the project teams of Batumi Shota Rustaveli State University and Akaki Tsereteli State University for the perfect organization of the International Highlight Event!

### **Practical Training “Climate Change - Mountain Systems as an Indicator of Climate Change Impacts”.**



Practical Training “Climate Change - Mountain Systems as an Indicator of Climate Change Impacts” in Machakhela National Park in Georgia within Erasmus+ Project “Synergy of educational, scientific, management and industrial components for climate management and climate change prevention.”

Within the framework of the Erasmus+ Project “Synergy of educational, scientific, management and industrial components for climate management and climate change prevention/CLIMAN” in the period from 16-20 September in Georgia with the organisation and technical support of Batumi State University Training “Climate Change

### Newsletter 10 / September 2024 – November 2024

- Mountain Systems as an Indicator of Climate Change Impacts”, that aimed to research impact of human activity on climate and mountain ecosystems as an indicator of this influence, was organized. The practical component of the seminar was held in Machakhela National Park on 18 September. Like all other protected areas in Adjara, Machakhela National Park was also established with an important mission to preserve the unique biological and landscape biodiversity, as well as the long-term protection of the Kolkha Forest ecosystem. And also for the development of tourism and recreational activities in the natural environment. Machakhela National Park is located in the municipality of Khelvachauri, in the Machakhelistskali Valley, at an altitude of 300-350 metres above sea level, 30 km from Batumi. The park was established in 2012 and its total area is 8733 hectares.

The territory of the National Park is represented by vegetation, which is located on the slopes of the Machakhela River, surrounded by forest. Almost the entire territory is covered with chestnut, beech, hornbeam and alder forests. Here one can find such relict and rare species as Colchian boxwood, chestnut, Colchian walnut, Georgian walnut, Pontic rhododendron, berry yew, birch bark and others.

The participants of the training received important information on how human activities influence the climate on the planet and how mountains are a sensitive indicator of this influence. Members of the consortium, including teams from different countries, were able to see in a practical context that changes in mountain ecosystems can provide an early indication of what is likely to happen on the plains, and thus mountains act as early warning systems. New insights into how climate change is affecting mountains were gained, as well as practical confirmation of the critical importance of engaging in procedures to develop new strategies to cope with current global warming trends.

Workshop participants hiked over 2 kilometres of mountain trails and gained practical experience that due to their altitude, slope angle and direct exposure to the sun, mountain ecosystems are easily destroyed by climate change. The study of the waterfall system confirmed the knowledge that mountains provide fresh water for half of the world's population. The organisers of the workshop demonstrated with practical examples how climate change will affect water availability and will have important implications for irrigation, urbanisation and industrialisation and hydropower generation, using the example of the hydro system of Machakhela National Park. The workshop participants learned that almost half of the world's biodiversity centres are located in mountainous areas. As part of the CLIMAN project's key tasks, a collective decision was made to continue working on research to develop integrated measures for climate change mitigation and adaptation. As well as to continue implementing the knowledge gained into the educational processes of partner universities in order to train a new generation of climate managers.

Many thanks to the project team of Batumi State University for organization of the wonderful practical training!



## Studying of the ecosystems in Kutaisi.



In frameworks of the International Highlight Event of Erasmus+ Project “Synergy of educational, scientific, management and industrial components for climate management and climate change prevention/CLIMAN” that took place in Georgia 16-20 September 2024, the project teams had the opportunity to study cave ecosystems, which are rich in the area around Kutaisi. In the mountains of Georgia there are many caves with unique ecosystems, underground lakes and rivers. Many of these caves contain traces of dinosaurs. Kumistavi is a kind of a network of caves with separate halls. The total length of the network is about 22 kilometres (only 1420m are accessible). Prometheus Cave is located in the west of Georgia, 20 km from Kutaisi, near the town of Tskaltubo. It is the most famous and largest in the country. On its example, the delegation members could practically learn the peculiarities of karst systems. Karst is defined as processes occurring inside the earth and associated with water. Karst processes are said to occur when underground water dissolves rocks, leaches them, washes them out, which results in the formation of cavities, internal voids. This leads to subsidence, the emergence of soil failures, and subsequently buildings and structures are deformed and destroyed. Also karst processes include waterlogging of mine workings, tunnels. Taking into account the

## Newsletter 10 / September 2024 – November 2024

fact that the territory of Ukraine has about 67 per cent of karst reliefs, the topic was especially relevant for the Ukrainian part of the consortium.

Karst hazard arises from a combination of the following conditions: changes in relief; degradation of the vegetation layer; pollution of ground and surface waters; pollution of precipitation and the atmosphere in general.

As a result of karst processes taking place in certain territories, various cavities and voids are formed: dips, ravines, caves, wells, sinkholes, mines, underground canals, karst bridges. Colleagues from Kutaisi shared innovative information on what types of works are necessary in engineering surveys (hazard and risk assessment from natural and man-made processes; justification of measures for engineering protection of the territory; geological, hydrological and geodetic works and studies in the process of construction; local monitor of the territory; local monitoring of the construction process). In the conditions of fast and abrupt climatic changes the issues of engineering protection of territories and reduction of danger, damage and risk from exogenous geological processes are especially urgent.

### **Students mobility to Akaki Tsereteli State University (Georgia).**



On September 20, 2024, students participating in a two-week mobility program at Akaki Tsereteli State University successfully presented and defended their projects, marking the culmination of their academic experience.

Synergy of educational, scientific, management and industrial components for climate management and climate change prevention/ *CLIMAN 619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP*



### Newsletter 10 / September 2024 – November 2024

For this important event, the Final Day of the International Highlight Event was relocated from Batumi to Kutaisi, where all project teams gathered early in the morning at ATSU to join student activities. Prof. Shalva Kirtadze, Rector of Akaki Tsereteli State University and project team of ATSU, opened the event and warmly welcomed the participants. Student teams from Ukraine and Georgia impressed with their high level of preparation, demonstrating a strong ability to integrate interdisciplinary knowledge with soft skills during their presentations. The jury commended the students for their excellent performance. The results of the CLIMAN activities were also reviewed and summarized. The event concluded with a cultural program, where ATSU students performed national and classical dances and songs and all participants enjoyed a large CLIMAN cake, marking the successful conclusion of the consortium's series of working trips.

Many thanks to Akaki Tsereteli State University for organization of the wonderful Event!

---

#### **Students two-week mobility program at Mykolas Romeris University (Lithuania)**

From September 2 to 13, 2024, students participated in a two-week mobility program at Mykolas Romeris University (Lithuania) as part of the Erasmus+ KA2 project "Synergy of Educational, Scientific, Managerial, and Industrial Components for Climate Management and Climate Change Prevention" (CLIMAN). The program aimed to deepen the understanding of global climate change and the role of stakeholders in achieving sustainable development goals. The training included lectures, practical sessions, and field research, allowing participants to combine theoretical knowledge with hands-on experience.

##### **Week 1: Urbanism and Climate Challenges**

The first week began with lectures by Professor Paulo Pereira on global climate change. Throughout the week, students explored issues related to urbanization and the impact of climate change on coastal areas and tourism. Seminars on land-use changes in urban areas sparked active discussions among participants. The highlight of the week was a field trip to Vingis Park, where students studied the role of green spaces in mitigating the effects of climate change.

##### **Week 2: Advanced Knowledge and Practical Research**

The second week focused on a detailed study of sustainable development goals and the involvement of stakeholders in climate management. A key part of the week was a field study in the Dzūkija National Park, where students had the opportunity to assess the importance of ecosystem preservation firsthand. Lectures on ecosystem services in urban green spaces, as well as seminars on public perceptions of these issues, enhanced the participants' understanding of climate management at the local level.

## Newsletter 10 / September 2024 – November 2024

Throughout the two weeks, students actively participated in practical sessions, discussions, and group projects. The program concluded with project presentations, where each group showcased the results of their research and proposed solutions for sustainable development in the context of climate change.

### Learning Outcomes

The training in Lithuania was a crucial step in the professional development of the students. Lectures by leading experts and participation in practical research not only deepened their knowledge of climate change but also taught them how to apply this knowledge in practice. Interaction with peers from different countries helped students grasp the global nature of climate challenges and the importance of international cooperation.

This course not only provided new knowledge but also motivated the students to continue their research in the fields of sustainable development and climate management.

---

## Formalising cooperation within the project, signing contracts.

ЦЕНТР КЛІМАТИЧНОГО  
МЕНЕДЖМЕНТУ (ЦКМ)


ХІМІЇ ТА ХІМІЧНОЇ ТЕХНОЛОГІЇ

ТЕХНОЛОГІЇ ДОРОЖНЬО-  
БУДІВЕЛЬНИХ МАТЕРІАЛІВ ІМ.  
М.І. ВОЛКОВА

ПРОЕКТУВАННЯ ДОРІГ, ГЕОДЕЗІЇ  
І ЗЕМЛЕУСТРОЮ

МОСТІВ, КОНСТРУКЦІЙ І  
БУДІВЕЛЬНОЇ МЕХАНІКИ ІМ. В.О.  
РОСІЙСЬКОГО

КОМП'ЮТЕРНОЇ ГРАФІКИ



ІНСПЕКЦІЯ У ПРАЦЕВЛАШТУВАННІ  
ЗА ПРОФІЛЕМ НАВЧАННЯ ТА  
«САМОПРАЦЕВЛАШТУВАННІ»

АКТИВНОСТІ

Стартапи та наукові інновації здобувачів

Спільні науково-виробничі проекти

Актуальні новини та події

Робота з партнерами

1. Державна екологічна інспекція у Харківській області

2. Інститут енергетичних машин і систем ім. А. І. Підгорного НАН України

3. Приватне підприємство «Таксі-Блюз»

4. Громадська екологічна організація безпеки регіонів України

5. Науково-дослідна установа «Український науково-дослідний інститут екологічних проблем» (далі – УКРНДІЕП)

6. Державне підприємство "Адміністрація річкових портів"

7. Національний аерокосмічний університет ім. М.С. Жуковського «Харківський авіаційний інститут»

8. Андрій Лисенко

As part of the Climan project implementation in Ukraine, climate management centers are actively being developed, with their main task being the implementation of innovative solutions in the field of climate change management for the sustainable development of the country.

Synergy of educational, scientific, management and industrial components for climate management and climate change prevention/ *CLIMAN 619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP*



## Newsletter 10 / September 2024 – November 2024

Ukrainian project partners, including leading higher educational institutions, have signed a number of strategic agreements to ensure effective cooperation. Specifically:

1. Kharkiv National Automobile and Highway University in cooperation with KROK University signed agreements on cooperation with:

- ☐ State Ecological Inspection of Kharkiv Region
- ☐ A. I. Pidgorny Institute of Energy Machines and Systems of the National Academy of Sciences of Ukraine
- ☐ Private Enterprise "Taxi-Blues"
- ☐ Public Ecological Organization "Regional Security of Ukraine"
- ☐ Research Institution "Ukrainian Research Institute of Environmental Problems" (hereinafter – UKRNNDIEP)
- ☐ State Enterprise "River Ports Administration"
- ☐ National Aerospace University named after M.Ye. Zhukovsky "Kharkiv Aviation Institute"

☐ Andriy Lysenko

2. Lviv Polytechnic National University signed agreements on cooperation with:

- ☐ Employers' Association of Lviv Region
- ☐ Lviv Regional Organization of the All-Ukrainian Environmental League
- ☐ Institute of Agriculture of the Carpathian Region of the National Academy of Agricultural Sciences of Ukraine
- ☐ Limited Liability Company "Aquapolymer Engineering"
- ☐ Public Organization "Center for Engineering Ecology"
- ☐ Limited Liability Company "WEST ENGINEERING"
- ☐ Limited Liability Company "WEST"
- ☐ Limited Liability Company "Institute of Mining and Chemical Industry"
- ☐ Lviv Agrarian Chamber
- ☐ Limited Liability Company "PANSEMAL"
- ☐ Limited Liability Company "Company "Center LTD"
- ☐ Limited Liability Company "Digital Technologies - West"
- ☐ Lviv Municipal Enterprise "Green City"
- ☐ Department of Ecology and Natural Resources of the Lviv Regional State Administration.

3. West Ukrainian National University signed agreements on cooperation with:

- ☐ NGO "Tourism Development Agency of Ternopil Region"
- ☐ NGO "West Ukrainian Energy Hub"
- ☐ Department of Strategic Development of the Ternopil City Council
- ☐ Ternopil Regional Center for Hydrometeorology
- ☐ Department of Architecture, Urban Planning, Housing and Communal Services, and Energy Saving of the Ternopil Regional Military Administration

## Newsletter 10 / September 2024 – November 2024

- Department of Ecology and Natural Resources of the Ternopil Regional Military Administration
- Branch of State Enterprise "Tsukorpromvodonaladka" of PJSC "Sater Joint Stock Company"
- Municipal Enterprise of Heat Networks "Ternopilmiskteplokomunenergo"
- Municipal Enterprise "Union of Parks of Culture and Recreation of Ternopil"
- Department of Housing and Communal Services, Improvement, and Ecology of the Ternopil City Council.

These agreements will contribute to strengthening the scientific and educational potential and creating the necessary infrastructure for the project's implementation at all levels.

---

*News from partners*

### **KROK University**

#### **Students mobility to MRU (Lithuania)**



Co-funded by the  
Erasmus+ Programme  
of the European Union



From September 2 to 13, 2024, a group of students from the Professional College participated in a two-week training program at Mykolas Romeris University (Lithuania) as part of the Erasmus+ KA2 project “Synergy of Educational, Scientific, Managerial, and Industrial Components for Climate Management and Climate Change Prevention”

Synergy of educational, scientific, management and industrial components for climate management and climate change prevention/ CLIMAN 619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP



## Newsletter 10 / September 2024 – November 2024

(CLIMAN). The program aimed to deepen the understanding of global climate change and the role of stakeholders in achieving sustainable development goals. The training included lectures, practical sessions, and field research, allowing participants to combine theoretical knowledge with hands-on experience.

The training in Lithuania was a crucial step in the professional development of the students. Lectures by leading experts and participation in practical research not only deepened their knowledge of climate change but also taught them how to apply this knowledge in practice. Interaction with peers from different countries helped students grasp the global nature of climate challenges and the importance of international cooperation.

This course not only provided new knowledge but also motivated the students to continue their research in the fields of sustainable development and climate management.

### **Students mobility to Georgia**



From September 9 to 20, 2024, students of the Professional College of KROK University participated in a mobility program at Akaki Tsereteli State University (Georgia) as part of the Erasmus+ KA2 project “Synergy of Educational, Scientific, Managerial, and Industrial Components for Climate Management and Climate Change Mitigation” (CLIMAN). This event provided a unique opportunity for students to expand their knowledge of climate change while gaining invaluable hands-on experience.

Throughout the two weeks, students took part in classes held in modern lecture halls and specially equipped university laboratories. They conducted various experiments,

### Newsletter 10 / September 2024 – November 2024

which allowed them to practically explore climate change. Laboratory work became an essential element of the academic program, offering students the chance to master new techniques in the field of ecology.

In addition to lab work, students participated in numerous field trips to natural locations, where they were able to study the effects of climate change firsthand. These studies deepened their understanding of global environmental issues and gave them the opportunity to observe how climate change impacts Georgia's ecosystems.

The mobility program provided students with invaluable experience. They not only deepened their knowledge of climate challenges but also acquired new skills essential for their future professional careers in ecology. Such mobility programs help our students grow and better understand global ecological processes.

The entire team of the "LOTOS" environmental club expresses sincere gratitude to the faculty and administration of Akaki Tsereteli State University for organizing such an enriching and beneficial experience. Special thanks are also extended to the CLIMAN project for offering students this unique opportunity to continue their education and research amidst the challenges caused by the war in Ukraine.

We are confident that the knowledge and experience gained will support the students in their future work towards combating climate change and advancing sustainable development.

---

### **Sustainability Conference in frameworks of Erasmus+ project CLIMAN**



Synergy of educational, scientific, management and industrial components for climate management and climate change prevention/ CLIMAN 619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP



### Newsletter 10 / September 2024 – November 2024

16-20 September 2024 International Highlight Event 2: Dissemination and Sustainability Conference in frameworks of Erasmus+ project “Synergy of educational, scientific, management and industrial components for climate management and climate change prevention/ CLIMAN” (619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP) took place at Batumi Shota Rustaveli State University in Batumi, Georgia.

The team of KROK University was represented by:

- Andrii Lotariiev – Director of Educational and Scientific Institute of International Education;
- Halyna Bohachenko – Director of International Project Office;
- Anastasiia Shepelia – Project Manager of International Office;
- Anastasiia Nakonechna - Project Manager (Corporate Governance) of the executive support service;
- Alina Holtseva - Director of the Department for Student Affairs;
- Valentyn Yancharuk - Manager of Public Relations of the Department of PR and Advertising, Head of Vocal Studio.

Representatives of KROK University as co-coordinator, shared the story and challenges of the CLIMAN project. They highlighted key events and activities, summarizing the results and achievements. As partners, KROK presented the project's outcomes, including the development and piloting of climate management modules, modernization of educational programs, accreditation, as well as the activities and initiatives of climate management center, including the roadmap for collaboration with stakeholders.

Ukrainian and Georgian partners, in addition to the main project results, emphasized the importance of enhancing the qualifications of lecturers and administrative staff, providing opportunities for students, disseminating information, and ensuring the sustainability of initiatives. The meeting also included practical sessions in Machakhela National Park and student presentations showcasing their achievements after completing a two-week internship at Akaki Tsereteli State University in Kutaisi.

The strong CLIMAN consortium, comprising partners from the Netherlands, Germany, Latvia, Lithuania, Italy, Ukraine, and Georgia, demonstrated mutual understanding, shared values, problem-solving abilities, and support throughout the project. This collaboration lays a solid foundation for new perspectives, opportunities, and initiatives that promise continued fruitful cooperation in the future.

Many thanks to the project teams of Batumi Shota Rustaveli State University and Akaki Tsereteli State University for the perfect organization of the International Highlight Event!

---

## West Ukrainian National University

### **Environmental monitoring at the West Ukrainian National University**



The Climate Management Center of the West Ukrainian National University is created within the framework of the project 619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP «Synergy of educational, scientific, management and industrial components for climate management and climate change prevention» / CLIMAN (Erasmus+ Programme, Neighbourhood, Development and International Cooperation Instrument, Objective CA2: Capacity building in higher education). The Center focuses its activities on ensuring educational, scientific, managerial and industrial components for climate management and climate change prevention, organizing research in the field of climate management, promoting the development and strengthening the university capacity, and modernizing educational programs.

In accordance with the development Strategy of the West Ukrainian National University for 2021-2025 and the objectives of the Green University Concept, an environmental monitoring system was introduced on the campus of WUNU.

As part of the cooperation with the NGO SAVE DNIPRO, in particular the Environmental Marathon project, two SaveEcoSensor 3.0 stations were set up on the territory of WUNU to monitor air quality, with its data displayed in the all-Ukrainian environmental monitoring network.



## Newsletter 10 / September 2024 – November 2024

The planned environmental monitoring system of WUNU includes the following components: air quality and analysis of the impact of vehicles and heating systems; noise level measurement; water quality (determination of the quality of drinking water in the water supply system and open surface waters of the Ternopil Reservoir and the Seret River); soil quality (determination of parameters and level of pollution); biodiversity (monitoring of flora and fauna species on campus); household waste research (analysis of the composition of waste with division into different groups of fractions: paper, plastic, glass, metal, organic).

The monitoring data will be used to assess the environmental condition of the campus, identify problem areas and develop measures to address them, develop waste management plans, optimize energy supply, and assess environmental factors for the quality of life of students and university staff.

---

*News from partners*

### **Akaki Tsereteli State University**

#### **Students - participants of the mobility in the frame of the Erasmus+ CLIMAN Project visited Kutaisi Composting Center**

On September 9- 20, 2024 Akaki Tsereteli State University had the honour to welcome students from 4 Ukrainian universities (KROK University, Kharkiv National Automobile and Highway University, Lviv Polytechnic National University and West Ukrainian National University) and 2 Georgian universities (Akaki Tsereteli State University and Batumi Shota Rustaveli State University) in the frame of Erasmus+ CBHE CLIMAN Project. In the frame of the study program a visit to the Green Waste Composting Center in Kutaisi was organized for the participants of the mobility.



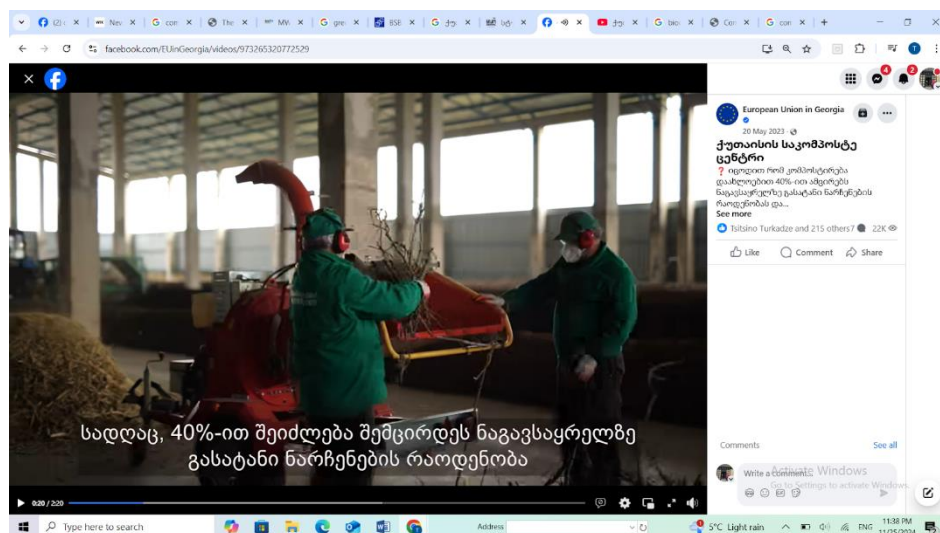
Synergy of educational, scientific, management and industrial components for climate management and climate change prevention/ *CLIMAN 619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP*

## Newsletter 10 / September 2024 – November 2024

Having a space of 3000 square meters the Composting Center was established in the frame of the Waste Free Rivers for a Clean Black Sea – MWM-GMR (BSB457) project and is one of the first in Georgia licensed for biodegradable waste management. The Center was designed for windrow composting of green waste (tree branches, leaves, grass), which until recently was being sent to landfill but is now often collected separately by local councils and brought to the centre. The center productivity is 2000 tons of compost annually.

In one of the first composting centers in Georgia the students were hosted by the staff of the center introduced the students to the stages of compost production – how it is crushed, aerated, and watered. The importance of compost and its positive aspects were underlined. The compost contains all the necessary elements that a plant needs for growth and development and the process that biowaste is going through is analogous to the formation of humus in nature.

From two categories of the decomposition process, aerobic composting in the presence of ample O is chosen in the composting center. The aerobic composting process starts with the formation of the pile of the tree brunches and leaves that are crushed into small parts. One challenge that the center has at the moment is lack of machine to crush big brunches and wide tree parts. The wood big in size is collected and given to socially vulnerable families who use the wood for heating.



As aerobic composting requires a lot of O, particularly at the initial stage the pile is frequently turned, as it is considered the best technique for improving aeration. Turning deals with excessive heat, water vapour and other gases accumulated in the pile. That's why staff the center ensure frequent turning.

As moisture is necessary to support the metabolic activity, composting materials are moistured. It is important to keep particular level of moisture (approximately 45-60%)



## Newsletter 10 / September 2024 – November 2024

because if the pile is too dry, composting occurs more slowly, but if the level of moisture is more than 65% anaerobic conditions prevail.

By the time composting is completed, the pile becomes more uniform and less active biologically. The material becomes dark brown to black in color.

Later, the particles are chopped in order to reduce them in size and make the mixture consistent and soil-like in texture.



Chopping or grinding increases the surface and provides better aeration. In the process, the amount of humus increases. It was interesting to realize that compost contains nutrients needed by crops such as nitrogen, phosphorus, and potassium including other essential elements like calcium, magnesium, iron, and zinc, that means that the compost may be used independently and solely.



Composting is considered as alternative of chemical fertilizer as natural material in agriculture instead of chemical that have negative impact on the environment. By practicing the abovementioned natural composting natural bio- fertilizers are provided to plants which are safer for the environment and people.

## Newsletter 10 / September 2024 – November 2024

The valuable experience was to see sustainable recycling and reusable method that control pollution and helps to reduce affect on humans' health and bell-being.

---

*News from partners*

### **Turiba University**

#### **On-line Lecture on Sustainable Entrepreneurship**



**Turība University**

**Sustainable mindset - how to develop it?**

Ieva Bruksle  
19.11.2024

**IEVA BRUKSLE Mg.oec.**  
Project manager  
Lecturer - economics, international business, entrepreneurship  
Teacher- economics, business  
Expert in Erasmus+ projects - sustainability, entrepreneurship  
Chairperson of the board-  
Urbāna radošā metālmākslas darbnīca LTD  
Association of Latvian Economists  
A problem solver

Sustainable entrepreneurship is a contemporary reality - businesses are increasingly recognizing the importance of incorporating sustainability aspects into their operations. However, how can sustainability practices be implemented within a company? How can one begin designing a sustainable product or service? While many aspire to work sustainably, entrepreneurs often lack clarity on how to practically start this process.

For several years, Turiba University has integrated various courses into its programs to help students understand sustainability issues. Recently, we concluded the ERASMUS+ project SECA, during which we collaborated with partners from Finland and Germany to develop materials aimed at creating and planning sustainable business ideas.

On February 20, Turiba University lecturer Ieva Bruksle gave on-line lecture on sustainable entrepreneurship and methods for generating sustainable business ideas. This lecture was organized as part of the CLIMAN project for students and lecturers at KROK University, sharing insights and newly developed digital teaching materials.

The lecturer presented real-life examples of entrepreneurs in Latvia, Finland, and Germany who have successfully integrated sustainable business practices into their operations. Lecturer also demonstrated and explained the practical application of various



## Newsletter 10 / September 2024 – November 2024

methods, such as the Sustainability Canvas and the Problem-Solution Tree method, for generating sustainable business ideas.

Such collaborative events promote sustainable cooperation among universities beyond project frameworks and foster synergies across various projects. For instance, in this case, sharing valuable materials developed in another ERASMUS+ project serves as a great example of cross-project collaboration.

---

*News from partners*

### **Kharkiv National Automobile and Highway University**

**Student mobility within the framework of the Erasmus+ Project “Capacity Building of Higher Education” / Synergy of educational, scientific, managerial and industrial components for climate management and climate change prevention / CLIMAN**



09.09. In the curriculum of academic mobility of applicants: Official greetings and introductions. Getting to know each other. Introduction of the course, content, agenda. Discussion of expectations of participants. Scientific databases and their services. Group work - using scientific databases

10.09. In the curriculum of academic mobility of applicants:

Session 1 - Air pollution and climate change.

Synergy of educational, scientific, management and industrial components for climate management and climate change prevention/ *CLIMAN 619119-EPP-1-2020-1-NL-EPPKA2-CBHE-JP*

### Newsletter 10 / September 2024 – November 2024

Session 2 - Water resources and climate change. Discussion of short videos. Visits to laboratories.

11.09. In the curriculum of academic mobility of applicants: Safety briefings. Safety rules in the laboratory. Performing laboratory work.

12.09. In the curriculum of academic mobility of applicants: Specifics of work in laboratories. Briefings on work in laboratories. Laboratory work.

13.09. In the curriculum of academic mobility of applicants: Waste management and climate change. Organic waste and green waste. Composting. Discussion of short videos.

16.09. In the curriculum of academic mobility of applicants: Visit to Batumi State University named after Shota Rustaveli. Attendance at the first day of the conference.

17.09. In the curriculum of academic mobility of applicants: Seminar on media literacy and academic integrity. Visit to the Composting Center.

18.09. In the curriculum of academic mobility of applicants: Recreation management in protected areas Visiting protected areas.

19.09. In the curriculum of academic mobility of applicants: Individual work in groups. Time to prepare for presentations.

20.09. In the curriculum of academic mobility of applicants: The final day. Student presentations. Closing remarks.

---