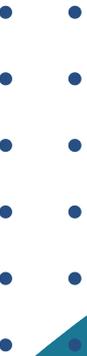


IFUTURE



BOOK OF CASE STUDIES

Developed in the framework of the IFUTURE Project



Co-funded by
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Preface

This collection of case studies is developed from the 1Future Project — an initiative dedicated to deepening collaboration between academia and business sector through practice-oriented learning and applied research. The 30 cases presented here reflect some of the most productive partnerships developed through the project, and may serve as a inspiration for further research at bachelor's, master's, or PhD level.

Through the 1Future platform, course participants and selected graduate students from Western Balkan universities were placed in professional internships and collaborative project work alongside partner companies/institutions. These engagements went beyond traditional placements: they became shared spaces for developing ideas, testing solutions, and laying the groundwork for sustained research cooperation between students, academic staff, and business practitioners.

The result was a dynamic environment in which academic knowledge, research capacity, and industry expertise converged. The case studies in this volume document selected outcomes of that convergence — concrete examples of what becomes possible when universities and businesses commit to working together in genuine partnership. They speak to the broader potential of structured academia–business collaboration to enrich student learning, advance applied research, and sharpen the relevance of higher education to real-world challenges.



<https://www.1future-platform.com/>



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List of Case Studies

1. Turning Evidence into Action: Sustainable Rafting Tourism on the Shkumbin River — University of Tirana — Practice-based collaboration
2. Calculating the Environmental Footprint in Albanian Production Companies — University of Tirana — Practice-based collaboration
3. Building Resilience in Agribusiness – The Case of FITO Farm — University of Tirana — Practice-based collaboration
4. Sustainable Risk Management in the Medicinal and Aromatic Plants Sector – The Case of Gjokaj Herb — University of Tirana — Practice-based collaboration
5. Applied Reduction of Single-Use Plastic in the HoReCa Sector Along the Shkumbin River Basin — University of Tirana — Practice-based collaboration
6. Waste Management Sector: Evaluating the Municipal Waste System in Elbasan and Opportunities for Improvement — University of Tirana — Practice-based collaboration
7. Business Approach to Sustainability Reporting — University of Tirana — Practice-based collaboration
8. Collaboration on Sustainable Urban Mobility Research in Kiseljak — University College CEPS — Practice-based collaboration
9. Sustainable Community Health: Student-Led Blood Donation in Kiseljak — University College CEPS — Practice-based collaboration
10. Strengthening Institutional Resilience — University College CEPS — Practice-based collaboration
11. Sustainable Innovations and Green Transition — University College CEPS — Practice-based collaboration
12. Training Workshop on Air Quality and Noise Monitoring and Analysis — University College CEPS — Practice-based collaboration
13. Integrating Academic Research and Policy Practice for Climate and Carbon Market Innovation in Albania — Polytechnic University of Tirana — Practice-based collaboration
14. Internship of MSc Student of Environmental Engineering at the EcoDES Consultancy — Polytechnic University of Tirana — Practice-based collaboration
15. Climate Change Adaptation Strategies for Urban Areas: A Case Study in Municipality of Tirana, Albania — Polytechnic University of Tirana — Practice-based collaboration



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<https://1future.feut.edu.al/>



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List of Case Studies

16. Strengthening EIA Capacity Through Professional Internship at the Ministry of Tourism and Environment — Polytechnic University of Tirana — Practice-based collaboration
17. Sustainability of Oxygenation Technologies Integrated into Drip Irrigation System — Polytechnic University of Tirana — Research-based collaboration
18. Integrating Environmental Engineering Expertise into Sustainable Construction Practice – Internship at Kontakt AL — Polytechnic University of Tirana — Practice-based collaboration
19. Assessment of Coal Mine Pollution Load on the Multipurpose Modrac Reservoir — University of Tuzla — Research-based collaboration
20. Environmental Risk Management in Stone Quarrying — University of Tuzla — Research-based collaboration
21. Impact of Information Technologies on the Efficiency of Red Cross Society of Bosnia and Herzegovina Humanitarian Response — University of Tuzla — Research-based collaboration
22. Possibilities for Mitigating Environmental Impacts of Abandoned Mining Works — University of Tuzla — Research-based collaboration
23. Fire Risk Management in the Cement Industry — University of Tuzla — Research-based collaboration
24. Sustainable Resource Management in the Beverage Industry — Luarasi University — Practice-based collaboration
25. Circular Economy Practices in Beer Production — Luarasi University — Practice-based collaboration
26. Sustainable Packaging and Resource Efficiency — Luarasi University — Practice-based collaboration
27. Improving the Quality of Building Construction in a Construction Company — University of Montenegro — Practice-based collaboration
28. Smart Construction Management: Digital Tools and Sustainable Practices — University of Montenegro — Practice-based collaboration
29. Enhancing Construction Quality in Small Firms: The Case of M Route — University of Montenegro — Practice-based collaboration
30. Sustainable Construction Practices and Project Optimization in Montenegro — University of Montenegro — Practice-based collaboration



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KEY THEMES EXPLORED

Academia -Business Collaborations
across the Wester Balkan Region

Climate
Resilience &
Adaptation

Waste
Management &
Circular
Economy

Sustainable
Industry &
Construction

Sustainable
Mobility &
Urban Planning

Community
Resilience &
Capacity Building

Risk
management &
Resilience

TURNING EVIDENCE INTO ACTION: USE SUSTAINABLE RAFTING TOURISM ON THE SHKUMBIN RIVER

The case study was developed in collaboration with local public institutions in the Municipality of Elbasan, particularly the sector responsible for tourism development and environmental management. The municipality plays a key role in promoting sustainable local development, managing natural resources, and supporting emerging forms of tourism such as nature-based and adventure activities. A key natural asset within its territory is the Shkumbin River, one of Albania's major river systems.

The river has growing potential for rafting tourism, attracting both domestic and international visitors. However, unmanaged plastic pollution and weak waste management practices threaten its ecological integrity and tourism competitiveness. This context makes the municipality highly relevant to sustainability and green transition initiatives.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How does plastic pollution in the Shkumbin River affect tourists' satisfaction, behavioral intentions, and perceptions of river-based recreation?
- What is tourists' willingness to pay (WTP) for interventions aimed at reducing plastic pollution and improving riverine environmental quality?
- How can Contingent Valuation based WTP data inform policy recommendations for sustainable tourism and river management in Albania?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Reliable, data-driven evidence to support evidence-based tourism and environmental policy
- A measurable economic argument for investing in environmental quality
- Practical guidance for designing eco-fee mechanisms
- Strategic input for plastic reduction measures and green tourism development

METHODOLOGY EMPLOYED

The study used a mixed-method approach:

- structured tourist surveys conducted during the rafting season
- field observations along the river corridor
- stakeholder discussions with local authorities and environmental actors
- Contingent Valuation Method to estimate willingness to pay for environmental improvements



QUOTES

- “Working on a real environmental problem helped us understand how economic tools can support sustainability.” – Student participant
- “The study provides valuable evidence for improving rafting tourism while protecting the river.” – Municipal representative

RESEARCH OUTCOMES

The study produced clear and actionable evidence:

- Tourists were willing to pay an average of €5.49 per visitor for a cleaner river environment.
- Foreign tourists were willing to contribute around €7 more than domestic visitors, while visitors who perceived the river as more polluted reported higher willingness to pay.

Together, these findings confirm that environmental quality has a direct influence on tourism demand and visitor engagement.

WHY IT MATTERS

The findings show that environmental quality strongly influences tourism demand. A cleaner river increases visitor satisfaction and supports repeat visitation, while pollution creates both ecological and economic risks. The study also demonstrates that environmental protection can be translated into a measurable economic argument.

POLICY RELEVANCE

The results support:

- introducing a small environmental contribution within rafting packages
- organizing regular river clean-up campaigns
- installing water refill stations to reduce single-use plastic waste
- launching awareness campaigns for tourists and local communities
- preparing a local plastic reduction action plan for the Shkumbin River area

CALCULATING THE ENVIRONMENTAL FOOTPRINT IN ALBANIAN PRODUCTION COMPANIES

This case study focuses on a student-led initiative from the Master Program in Risk Management at the University of Tirana, aimed at calculating the environmental footprint of selected products in Albanian production companies. Three companies were selected for this purpose: Maccaferri Group, Gulit, and Aquila Liquori. Using a dedicated footprint calculator tool, students collaborated with these companies to assess environmental impacts, particularly carbon emissions and resource use. The project also included field visits and direct engagement with companies to collect data and understand production processes. This approach is important as it supports evidence-based decision-making and encourages the adoption of more sustainable production practices.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can environmental footprint calculations support more sustainable production practices?
- What are the main environmental impacts associated with selected products?
- How receptive are companies to measuring and improving their environmental performance?
- How can footprint data inform future sustainability improvements?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Improved understanding of environmental impacts across product life cycles
- Identification of opportunities to reduce carbon emissions and resource consumption
- Enhanced sustainability awareness within company operations
- Support for developing more sustainable and innovative production practices
- Strengthened collaboration with academic institutions and access to research-based insights

METHODOLOGY EMPLOYED

The study used a mixed-method approach:

- Use of an online environmental footprint calculator tool to quantify impacts
- Data collection through company visits and direct observation of production processes
- Life-cycle thinking approach, considering materials, production, and emissions
- Collaboration between students, professors, and company representatives



QUOTES

- “Calculating the environmental footprint of products is essential for promoting sustainable production practices.” – Student participant
- “Their work... creates lasting, positive impacts on both the industry and the planet.” – Company representative

RESEARCH OUTCOMES

- Development of environmental footprint assessments for selected products
- Increased awareness among students and companies about sustainability practices
- Identification of areas where environmental impacts can be reduced
- Strengthened university–industry collaboration through applied research
- Initial insights into improving product sustainability and reducing emissions

WHY IT MATTERS

Calculating the environmental footprint is essential for understanding how production activities affect the environment and for identifying ways to reduce negative impacts. It enables more informed decision-making and promotes sustainable production practices.

POLICY RELEVANCE

- Supports alignment with EU environmental footprint methodologies and sustainability frameworks
- Contributes to the development of national and corporate sustainability strategies
- Encourages transparency and reporting of environmental performance
- Provides evidence for policymaking related to sustainable production and resource efficiency

BUILDING RESILIENCE IN AGRIBUSINESS-THE CASE OF FITO FARM

The agribusiness sector plays a key role in economic development, employment, and exports in Albania, but faces growing challenges related to environmental pressures, climate change, and market demands. Many SMEs operate without formal sustainability policies or structured risk management, making them more vulnerable to various risks.

This case study focuses on FITO FARM, a vertically integrated agribusiness combining input trade, citrus production, processing, storage, and export. While this model offers advantages such as better quality control and flexibility, it also increases operational complexity and risk exposure.

A group of students developed an action plan to improve sustainability practices and risk management within the company.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can small agribusinesses integrate sustainability practices without increasing operational costs significantly?
- What are the key environmental and operational risks affecting agricultural SMEs?
- How can risk management improve long-term business resilience and competitiveness?
- What role can simple, low-cost sustainability measures play in reducing environmental impact?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Improved compliance with environmental and safety regulations
- Reduced legal and environmental risks related to pesticide use
- Better alignment with sustainability standards required for export markets
- Strengthened relationships with regulators, local communities, and stakeholders
- Increased awareness of sustainable agricultural practices

METHODOLOGY EMPLOYED

The study used a mixed-method approach:

- Study visits at the company
- Internal analysis of operations and processes
- Stakeholder analysis (employees, farmers, institutions, partners)
- Risk identification and evaluation (environmental, financial, operational, legal)
- Sustainability assessment of resource use (water, energy, waste)



QUOTES

- “Sustainability in small businesses often begins with simple, practical decisions rather than formal strategies” - Student participant
- “Managing environmental risks is essential not only for compliance, but for long-term business survival” - Business representative

RESEARCH OUTCOMES

- The main risks identified include pesticide management, climate conditions, and export process organization
- Lack of formal sustainability policies, but presence of informal good practices (e.g., drip irrigation, reuse of materials)
- High dependency on seasonal labor and external transport services
- Need for structured waste management, especially for hazardous packaging
- Opportunities for improvement through low-cost interventions and better planning

WHY IT MATTERS

This case highlights how small agribusinesses can transition toward sustainability gradually. Even without large investments, simple practices such as better waste management, worker safety measures, and resource efficiency can reduce risks and improve long-term performance. It shows that sustainability is not only an environmental issue but also a business strategy.

POLICY RELEVANCE

- Development of basic environmental regulations and guidance for SMEs
- Incentives for green investments and waste management systems
- Training programs on safe pesticide use and workplace safety
- Policies encouraging circular economy practices in agriculture
- Support schemes for climate resilience in agribusiness

SUSTAINABLE RISK MANAGEMENT IN THE MEDICINAL AND AROMATIC PLANTS SECTOR – THE CASE OF GJOKAJ HERB

The medicinal and aromatic plants sector plays an important role in Albania's exports and rural employment but faces growing challenges from climate change, environmental pressures, and market fluctuations.

This case study focuses on Gjokaj Herb, a company involved in the cultivation, processing, and export of plants such as sage, thyme, and oregano. With over 230 hectares and a strong export orientation, the company operates in a complex and risk-sensitive environment.

Despite its potential, it faces environmental, financial, and operational risks, especially linked to climate variability and international markets. A group of students developed an action plan to improve sustainability and risk management.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- What are the key environmental, financial, and operational risks affecting the company?
- How can risk management enhance resilience to climate variability and market fluctuations?
- What role can circular economy practices play in improving efficiency and reducing waste?
- How can the company strengthen its position in international markets?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Short-term impact included: Increased managerial awareness; Concrete financial evidence; Strengthened trust between academia and businesses
- Long-term potential includes: Deposit-return scheme implementation; Municipal recycling infrastructure; Eco-certification programs; Policy integration.

METHODOLOGY EMPLOYED

The study used a mixed-method approach:

- Field visits and on-site observations at Gjokaj Herb
- Semi-structured interviews with management and workers
- Stakeholder discussions with partners and local actors
- Risk assessment using qualitative analysis of key risk categories
- Review of company data and operational practices
- Evaluation of sustainability and circular economy opportunities



QUOTES

- “Working on this case helped us understand how sustainability and risk management are directly connected to business performance.” - Student participant
- “Adapting to climate and market challenges is essential for maintaining competitiveness in the medicinal plant sector.” - Business representative

RESEARCH OUTCOMES

- The company is highly exposed to climate and market risks, affecting production stability and financial performance
- Strong dependence on international markets increases vulnerability to external economic fluctuations
- Circular economy practices, such as reuse of plant waste, offer both environmental and cost benefits
- The action plan provides practical steps to strengthen sustainability and long-term resilience

WHY IT MATTERS

This case highlights the importance of integrating sustainability and risk management in the medicinal and aromatic plants sector. It shows how businesses can improve resilience to climate and market uncertainties while enhancing efficiency and long-term competitiveness.

POLICY RELEVANCE

- Climate adaptation measures for medicinal and aromatic plant cultivation (water management, soil protection)
- Promotion of sustainable harvesting and circular practices in the medicinal plant sector
- Support for export diversification and compliance with international quality standards
- Capacity-building programs for farmers and workers in the sector

APPLIED REDUCTION OF SINGLE-USE PLASTIC IN THE HORECA SECTOR ALONG THE SHKUMBINI RIVER BASIN

The case study was developed within the framework of applied academic–business collaboration focused on sustainability challenges in Albania. The Shkumbini River basin was selected as a focal geographic area due to its ecological importance, proximity to tourism activities, and exposure to plastic leakage from urban and hospitality-related activities.

The HoReCa sector (Hotels, Restaurants, and Cafés) plays a strategic economic role in the region. It supports tourism, employment, and local economic circulation. However, its operational model relies heavily on single-use plastics (SUPs), especially in beverage service, takeaway packaging, and accommodation services

RESEARCH QUESTIONS GUIDING THIS STUDY:

- What single-use plastic items make up most of the HoReCa waste streams in the Shkumbini basin, and where are the places where they tend to leak?
- For businesses of different sizes, which replacement options (like reusable or compostable) offer the biggest savings at the lowest cost?
- What are the net benefits (economic, environmental, and reputational) of replacing SUP for businesses in the HoReCa sector and cities?
- What city rules and services are needed to help cut down on SUP leaks in the Shkumbini basin?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

The collaboration contributed to improved awareness of sustainability and risk management practices in the medicinal and aromatic plants sector. It supported local economic development and rural employment, while also strengthening cooperation between businesses, academia, and local stakeholders. In addition, it helped improve alignment with environmental and safety regulations and promoted the adoption of circular economy practices at the local level.

METHODOLOGY EMPLOYED

The study used a mixed-method approach:

- operational mapping- researchers visited and observed each establishment
- semi-structured interviews with managers and operational staff
- stakeholder discussions with local authorities and environmental actors
- financial baseline analysis- using procurement invoices and reported quantities, monthly plastic costs were calculated.



QUOTES

- “Businesses expressed willingness to transition but emphasized the need for infrastructure and financial support.” - Student participant
- “More than 70% of the waste along the Shkumbin River is plastic. HoReCa and tourism can shift from major polluters to leaders of change” - NGO representative

RESEARCH OUTCOMES

The findings demonstrated three critical insights:

1. Plastic dependency is economically rational in the short term.
2. Hidden costs narrow the price advantage.
3. Systemic solutions are necessary for transition.
4. Reuse systems with deposit-return schemes achieved the strongest performance, with a potential 80–90% reduction in leakage.

The findings highlight that integrated, hybrid approaches are necessary to align economic viability with environmental responsibility.

WHY IT MATTERS

The collaboration generated immediate awareness improvements and strengthened academic-business partnerships. The research demonstrated that sustainability adoption within the HoReCa sector is primarily influenced by economic feasibility rather than environmental awareness alone.

POLICY RELEVANCE

The results support:

- The financial feasibility drives environmental adoption.
- Infrastructure determines success.
- Hybrid strategies outperform isolated measures.
- Collaboration increases legitimacy and acceptance.

WASTE MANAGEMENT SECTOR: EVALUATING THE MUNICIPAL WASTE SYSTEM IN ELBASAN AND OPPORTUNITIES FOR IMPROVEMENT

The case study examined plastic pollution and municipal solid waste mismanagement in the Elbasan and Librazhd municipalities of Albania. With collection coverage as low as 50% in some areas, the consequences are significant: illegal dumping, open burning, river pollution in the Shkumbin watershed, and serious public health risks. Despite ongoing EU alignment efforts, gaps remain in source separation, recycling infrastructure, and stakeholder coordination. The research explored how improved plastic sorting and recycling could reduce disposal costs, generate revenue from recovered materials, and support a broader transition to circular economy principles.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How is plastic waste currently managed in Elbasan Municipality?
- What are the costs and benefits of switching to a two-stream waste management system?
- What economic benefits could Elbasan achieve by improving waste sorting at source?
- Who are the key stakeholders in waste sorting and recycling in Elbasan?
- Is it possible to switch to a two-stream waste management system?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

Municipalities (Elbasan and Librazhd) and local recycling firms gained actionable, data-driven insights highlighting that a shift toward circular practices was not only environmentally desirable but also economically feasible. Specific opportunities for process improvements, as optimized collection routes, partnerships with informal recyclers, and better coordination among public institutions, private actors, and communities. These recommendations support cost reduction, improved resource efficiency, and stronger alignment with regional sustainability goals.

METHODOLOGY EMPLOYED

- The study combined qualitative and quantitative methods.
- Qualitative work included document analysis of municipal and national plans, semi-structured interviews, and a survey of waste department staff — exploring themes such as policy alignment, stakeholder incentives, and systemic barriers.
- Quantitative analysis applied a cost-benefit framework using Albania's standardized "dldp" cost-calculation model, with benefit valuations drawn from international literature.



QUOTES

- The cost-benefit analysis gave us numbers to use when speaking with decision-makers. It shows that investing in sorting is not a cost but an opportunity.” – Elbasan Municipal Administrator
- “Working with the student brought fresh ideas and new perspectives. We now see recycling not just as an obligation, but as a potential local economic driver.”- Representative, Local Recycling Company

RESEARCH OUTCOMES

- The analysis identified the persistent gaps of waste as low as 50% in certain areas, very low rates of source separation, outdated infrastructure, and limited participation in recycling activities.
- The insights highlighted the significant economic potential of properly sorted materials, particularly high-value types such as plastic, metals, and paper, as well as the serious environmental risks associated with current practices.
- A positive Net Present Value and favorable benefit-cost ratios indicate medium-term financial returns alongside meaningful reductions in environmental degradation.

WHY IT MATTERS

Build integrated circular systems that turn waste into resources, create green jobs, reduce pollution, and position Albania as a regional leader in sustainable waste management. Initial costs are offset by multi-year returns; political commitment and stakeholder collaboration are essential for success.

POLICY RELEVANCE

The results support:

- Operationalize Extended Producer Responsibility for packaging
- Establish a national waste coordination agency and improve data systems
- Investment in infrastructure
- Update municipal plans
- Enhance public engagement
- Introduce cost-reflective tariffs and tax incentives for recyclers
- Formalize informal collectors

BUSINESS APPROACH TO SUSTAINABILITY REPORTING

This case study examines the sustainability practices of AZ Group, an Albanian industrial enterprise, with the aim of understanding how economic growth and responsible business conduct can be pursued in parallel. Analyzing the company's performance across the three pillars of environmental, social, and governance (ESG) criteria, the study offers a grounded account of what sustainable industrial development can look like in the Albanian context — exploring how AZ Group manages its environmental responsibilities, engages with its workforce and local communities, and upholds standards of transparency and accountability. Beyond the company itself, the study draws out transferable lessons for other industrial enterprises in Albania and the wider Western Balkan region seeking to align with international sustainability standards and contribute to broader sustainable development goals.

RESEARCH QUESTIONS GUIDING THIS STUDY:

Which is the main focus of AZ group regarding sustainability practices based on:

- Environmental Analysis: Circular Economy Model; Zero Technological Waste; Carbon Negative Operations; Water and Soil Protection;
- Social Analysis: Workplace Excellence & Employee Well Being; Job Creation & Local Economic Impact; Value Chain Responsibility & Consumer Safety, Community Engagement & Educational Leadership
- Governance & Ethical Practices: Sustainability implementation; Compliance Standards & Certifications

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

Focused on sustainable growth and strategic expansion, AZ Group Albania continues to strengthen its presence regionally and beyond, while upholding high standards of environmental management, social responsibility, and corporate integrity. Its long-term vision is to contribute to a more sustainable industrial future by aligning economic performance with environmental and community well-being.

METHODOLOGY EMPLOYED

The analysis of AZ Group's sustainability performance is based on these methodologies:

- Public company Information
- Industry benchmarks
- ESG frameworks
- AZ group ESG framework stands for: (E) – Energy use, emissions, waste management; (S) – Employees, community, customers; (G)– Ethics, transparency, compliance



QUOTES

- "The transition to renewable energy is not just an environmental question — it's becoming an economic one. Energy costs are rising, and solar or other alternatives are starting to make clear financial sense." - Student participant
- "Transparency is not just about compliance. It builds trust. When stakeholders can see what you're doing and why, it changes the relationship entirely." — ESG Consultant

RESEARCH OUTCOMES

AZ Group Albania shows strong economic contribution but limited public sustainability disclosure.

To remain competitive, especially with European integration standards, the company should:

- Adopt formal ESG reporting
- Increase environmental transparency
- Strengthen social responsibility programs
- Improve governance disclosure

Recommendations

- Conduct carbon footprint assessment
- Implement recycling systems
- Install solar panels on warehouses
- Transition fleet to hybrid/electric vehicles
- Commit to carbon neutrality

WHY IT MATTERS

The sustainability has to be part of business everyday activities, not a side project. The company needs to follow the “Triple bottom line” approach, which gives equal importance to people, the planet, and profit. By doing this, the business ensures that protecting the environment and supporting society, shows a strong commitment to responsible and ethical leadership.

POLICY RELEVANCE

The results highlight the need for greater ESG transparency.

- Adopting formal ESG reporting and strengthening environmental, social, and governance disclosures would improve transparency and stakeholder trust.
- Implementing measures such as carbon footprint assessment, recycling systems, renewable energy use, and a greener vehicle support long-term sustainability.

COLLABORATION ON SUSTAINABLE URBAN MOBILITY RESEARCH IN KISELJAK

This case study documents a collaborative urban mobility research project in Kiseljak, Bosnia and Herzegovina, bringing together eighteen undergraduate students and faculty from University College "CEPS – Center for Business Studies" with the Municipality of Kiseljak through the 1FUTURE platform. Working under academic mentorship and in coordination with municipal staff, students conducted surveys, interviews, field observations, and data analysis, followed by co-design workshops to translate findings into actionable planning insights. The project addressed a common gap in small municipalities — limited capacity for data-driven transport planning — while demonstrating a low-cost, scalable model of academia–municipality collaboration. Outputs included a structured dataset, an applied research study, a scientific paper, and a conference presentation. Beyond these deliverables, students developed practical research skills and green and digital competencies, while the project itself laid groundwork for replication and potential curricular integration in support of sustainable transport goals.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can collaboration between higher education institutions and local municipalities contribute to data-driven planning for sustainable urban mobility in small and medium-sized municipalities such as Kiseljak?
- What are the key mobility patterns, bottlenecks, and sustainability challenges within the urban transport system of Kiseljak identified through student-led field research and data analysis?
- To what extent can student-engaged, practice-based research serve as an effective and low-cost model for supporting evidence-based urban mobility planning and policy development at the local level?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Evidence-based planning: Access to data and analysis supporting informed mobility decisions
- Cost-effective research: Valuable insights generated with minimal financial resources
- Stronger academia–municipality links: Improved cooperation and knowledge transfers
- Innovative perspectives: New ideas for addressing local mobility and sustainability challenges

METHODOLOGY EMPLOYED

The study used a mixed-method approach:

- Field data collection: Surveys, interviews, and on-site observations
- Quantitative and qualitative methods were applied to assess traffic flows, transport use, and key mobility challenges
- Students and municipal staff jointly discussed findings and explored potential mobility solutions
- Research synthesis and dissemination: Results were compiled into a scientific paper and published



QUOTES

- “I particularly appreciated how interactive sessions and fieldwork encouraged collaborative thinking about how Kiseljak could become a more accessible, safer, and sustainable city for all of us.” – Student participant
- “This was a valuable opportunity for students to apply their knowledge in a real-world context and for the municipality to benefit from fresh academic perspectives in shaping its new strategy” – Municipal representative

RESEARCH OUTCOMES

The collaboration produced valuable outputs supporting sustainable urban mobility in Kiseljak, including an applied research study, a structured dataset, and an analytical framework for future planning. Results were disseminated through a scientific paper and conference presentation within the 1FUTURE project. Students gained practical research skills, interdisciplinary teamwork experience, and competencies in academic writing and public-sector engagement. The municipality and CEPS benefited from evidence-based insights and strengthened cooperation, demonstrating how student-led research can support local mobility planning and sustainability goals while contributing to green and digital competencies.

WHY IT MATTERS

This initiative shows how collaboration between universities and local authorities can support evidence-based planning for sustainable urban mobility, especially in small municipalities with limited resources. It also demonstrates how student-led research can generate useful data while strengthening practical skills and partnerships between academia and public institutions.

POLICY RELEVANCE

The results support:

- evidence-based urban mobility planning at the local level in Kiseljak
- development of sustainable transport policies in small municipalities
- stronger cooperation between academia and public institutions in policymaking
- integration of research findings into local transport strategies
- promotion of green transition and sustainable mobility goals in Kiseljak

SUSTAINABLE COMMUNITY HEALTH: STUDENT-LED BLOOD DONATION IN KISELJAK

The blood donation project campaign in Kiseljak successfully brought together students, teaching staff, local citizens, Red Cross volunteers, and medical professionals from the Transfusion Center in Sarajevo. A total of 36 donors participated, contributing to a vital community health initiative. The campaign was coordinated primarily through the 1 Future digital platform, which streamlined registration, communication, and overall event management. Students and staff also contributed by creating promotional materials and raising public awareness about the importance of blood donation. The campaign fostered new collaborations, improved organizational practices, and demonstrated a replicable model for future community health events. Overall, the initiative highlighted the power of solidarity, civic responsibility, and humanitarian action, creating a sustainable framework for future blood donation drives and other health-related community projects. This initiative contributes to community resilience, a key component of climate adaptation under 1FUTURE.

RESEARCH QUESTIONS GUIDING THIS ACTION:

- How can collaborative initiatives between higher education institutions, local authorities, and humanitarian organizations enhance community engagement and participation in blood donation campaigns?
- What strategies and tools, including digital platforms like 1FUTURE, are most effective in improving the efficiency, coordination, and sustainability of local health-related campaigns?
- How does student involvement in community health initiatives contribute to skill development, social responsibility, and the long-term sustainability of public health efforts?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Improved community engagement: Strengthened ties with students, citizens, and volunteers.
- Enhanced operational efficiency: Better coordination of donors and volunteers using the 1FUTURE platform.
- Innovative event management: Adoption of digital tools and structured campaign planning.
- Sustainable public health impact: Creation of a replicable model for future blood donation drives.

METHODOLOGY EMPLOYED

The action used a mixed-method approach:

- Planning and co-design workshops
- Community engagement: Outreach to citizens through social media, posters, and announcements
- Volunteer coordination and on-site execution
- Data tracking and analysis: Monitoring participation and collecting data to evaluate campaign effectiveness and inform future initiatives



QUOTES

- “It was an honor for me as a student to participate in the organization of this action , showing the importance of contributing to the well-being and sustainability of our community.” – Student participant
- “This action demonstrated such humanity, solidarity, and community spirit, while promoting sustainable community health and fostering long-term civic engagement. ” – Red Cross Kiseljak representative

RESEARCH OUTCOMES

Participating in the blood donation campaign provided students with valuable practical experience in organizing and coordinating a community health event. They developed project management and teamwork skills through collaboration with teaching staff, volunteers, and local authorities. Additionally, exposure to real-world medical and organizational contexts enhanced their professional competencies, preparing them for future roles in healthcare, social work, or community-based projects. This initiative also contributes to SDG 3 – Good Health and Well-Being by promoting access to essential blood supplies and fostering a culture of sustainable community health.

WHY IT MATTERS

This blood donation campaign matters because it strengthens community solidarity, promotes civic responsibility, and addresses a critical public health need. By involving students, staff, and local citizens, the initiative not only ensured the safe collection of blood but also built a sustainable model for future health campaigns, fostering skills, awareness, and long-term community resilience.

POLICY RELEVANCE

The results support:

- informed health planning for local blood supply
- sustainable community engagement and volunteerism
- Stronger institutional collaboration between academia and humanitarian organizations
- a model for future health initiatives

SUSTAINABLE INNOVATIONS AND GREEN TRANSITION

The International Student Conference “Sustainable Innovations and Green Transition” was held on May 22, 2025, in Kiseljak, Bosnia and Herzegovina, bringing together students and young researchers from 13 higher education institutions across six countries, along with local company representatives. A total of 57 papers were presented, covering topics related to sustainable business, green technologies, urban resilience, public health, and energy efficiency. University College CEPS Kiseljak organized the event in collaboration with international partners from Croatia, Romania, Slovenia, and Malta. The conference promoted knowledge exchange between academia and practice while contributing to several UN Sustainable Development Goals, including SDG 3 (Good Health and Well-Being), SDG 4 (Quality Education), SDG 7 (Clean Energy), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation, and Infrastructure), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).

RESEARCH QUESTIONS GUIDING THIS ACTIVITY:

- How can collaboration between students, young researchers, and industry representatives advance sustainable innovations and the green transition?
- What practical solutions and business models can emerge from multidisciplinary research to promote sustainability and environmental resilience?
- How can insights from this conference inform policies, industry practices, and local initiatives to achieve Sustainable Development Goals?

LOCAL INSTITUTIONS’ BENEFITS FROM THE COLLABORATION:

- Strengthened academic-industry partnerships and networking opportunities
- Enhanced student learning through mentorship and real-world exposure
- Increased visibility and reputation of participating institutions internationally
- Access to diverse research insights supporting sustainable development initiatives

METHODOLOGY EMPLOYED

The activity used a multidisciplinary, collaborative methodology:

- Students, young researchers, and company representatives submitted papers on sustainability, green technologies, and urban transition topics
- Mentors and faculty guided participants in research design, analysis, and presentation skills
- Interactive sessions, panel discussions, and Q&A promoted knowledge exchange between academia and industry



QUOTES

- “I believe that researching the impact of the environment on human health is of utmost importance today, as timely prevention and education can help prevent the development of numerous diseases.” – Student participant
- “Events like these give students practical experience, peer networking, industry engagement, and stronger connections with mentors.” – Academia participant

RESEARCH OUTCOMES

- The conference presented 57 papers from 13 institutions across six countries, fostering academic exchange and collaboration.
- Students improved research and presentation skills, while industry representatives connected academia with practice.
- The event boosted institutional visibility and international cooperation.
- It supported key SDGs, including health (3), education (4), clean energy (7), sustainable cities (11), and climate action (13).
- It strengthened students’ ability to develop innovative, sustainable solutions.

WHY IT MATTERS

This initiative bridges academia, industry, and young researchers, fostering knowledge exchange, skills development, and awareness of global sustainability challenges while strengthening networks and inspiring future solutions. It also promotes collaboration across borders, encouraging interdisciplinary approaches to real-world sustainability issues.

POLICY RELEVANCE

The results support:

- strengthening collaboration between academia, industry, and civil society on sustainability.
- informing policy and decision-making on green technologies and sustainability practices.
- advancing SDG implementation through practical student-led research and innovation.

STRENGTHENING INSTITUTIONAL RESILIENCE

In July 2025, University College CEPS Kiseljak hosted the ALERT Level 1 Integrated Response Train-the-Trainers program, initiated by DTCare Sarajevo under the leadership of Doc. dr. Amer Smailbegović, in cooperation with the Texas State University ALERT Center. The project included a five-day intensive training program that resulted in the certification of ten law enforcement professionals as Level 1 instructors in evidence-based active attack response. By combining theoretical instruction with realistic tactical simulations, the program strengthened institutional coordination and standardized emergency response practices across Bosnia and Herzegovina. CEPS students observed the training, linking academic knowledge with real-world crisis management. The initiative directly supported Sustainable Development Goal 16 by enhancing institutional resilience, public safety, and professional accountability. The newly certified instructors are expected to replicate the program nationally, ensuring long-term sustainability and multiplier effects. Enhanced emergency response capacity supports community resilience to climate-related disasters.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How does evidence-based, scenario-driven training enhance institutional resilience and operational readiness of law enforcement agencies in Bosnia and Herzegovina?
- What are the effects of international collaboration and Train-the-Trainers models on standardizing emergency response practices and knowledge transfer within local institutions?
- How can academic engagement and student observation in high-risk training programs contribute to professional competencies and support sustainable security and public safety goals?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Enhanced operational readiness: Standardized active attack response protocols for law enforcement.
- Improved inter-agency coordination: Stronger collaboration between local and national security institutions.
- Capacity building: Creation of a network of certified trainers for national replication.
- Sustainable security practices: Adoption of evidence-based methods supporting long-term institutional resilience.

METHODOLOGY EMPLOYED

The study used a structured, evidence-based training approach:

- Blended instruction: Combined classroom teaching with scenario-based tactical simulations
- Practical exercises: Participants engaged in integrated response drills replicating active attack situations
- After-action analysis: Guided debriefings evaluated decision-making, coordination, and communication
- Research synthesis and dissemination: Results were compiled into a scientific paper and published



QUOTES

- “This course left a strong impression on me, we learned a lot of useful things, which will mean a lot to us in the future.” – Student participant
- “The approach that included practical and theoretical aspects of dealing with high-risk situations is extremely important for improving the capabilities of law enforcement and security agencies.” – Ministry of Security participant

RESEARCH OUTCOMES

The ALERRT Level 1 program certified ten law enforcement professionals as instructors, established standardized response protocols, and enhanced inter-agency coordination. It created a sustainable trainer network, strengthened institutional resilience, and supported SDG 16 by promoting accountable security practices. Participants gained practical crisis management and coordination skills, linking academic knowledge with real-world applications, while CEPS and DTCare improved their capacity to organize and disseminate professional training, advancing long-term preparedness and sustainable institutional development.

WHY IT MATTERS

This initiative matters because it strengthens institutional preparedness and coordinated response to high-risk security incidents. By combining international expertise, professional training, and academic engagement, the program enhances the capacity of law enforcement institutions and contributes to safer and more resilient communities.

POLICY RELEVANCE

The results support:

- evidence-based protocols for active attack situations
- strengthened the capacity of law enforcement agencies and public institutions
- international best practices adapted for local contexts
- SDG 16 alignment: Promotes peace, justice, strong institutions, and accountable security practices.

TRAINING WORKSHOP ON AIR QUALITY AND NOISE MONITORING AND ANALYSIS

The Training Workshop on Air Quality monitoring and Analysis was held on May 29, 2025, at the Knowledge Hub for Climate and Sustainability (KHCS) at University College CEPS Kiseljak. The training combined a theoretical introduction to traffic noise and air quality monitoring with practical demonstrations of modern equipment used to measure air pollutants and traffic noise in both indoor and outdoor environments. Participants—including students, academic staff, and representatives from the business sector—gained hands-on experience in the use of monitoring devices procured through the GROWTH project, strengthening their understanding of environmental monitoring practices. The workshop also supported cross-sectoral cooperation and contributed to capacity building in climate sustainability and environmental protection in line with the objectives of the European Green Deal. Through interactive learning and practical demonstrations, participants improved their technical competencies and awareness of the importance of monitoring environmental impacts related to transport and urban activities.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can modern monitoring technologies improve the measurement and understanding of air pollution and traffic noise in urban environments?
- What knowledge and practical skills are necessary for students and professionals to effectively conduct environmental monitoring?
- How can collaboration between academia, industry, and practitioners support better environmental protection and climate sustainability practices?

LOCAL INSTITUTIONS BENEFITS FROM THE COLLABORATION:

- Improved technical capacity for monitoring air pollution and traffic noise
- Strengthened cooperation between academia, industry, and local stakeholders
- Increased awareness and knowledge on environmental protection and sustainable transport
- Opportunities for practical training and professional development for staff and students

METHODOLOGY EMPLOYED

The study used a combined theoretical and practical training methodology:

- Introductory lectures on air quality monitoring and environmental impacts
- Demonstration of modern equipment for measuring air pollution and traffic noise
- Hands-on exercises conducted in the classroom and outdoor campus area
- Interactive discussions between students, academic staff, and industry representatives



QUOTES

- “Great experience and very enjoyable interaction with the participants. I had the opportunity to use the equipment provided through the 1FUTURE project and practice the basics of its operation.” – Student participant
- “This was a valuable opportunity for our company to observe how noise and air pollution, often overlooked, impacted both daily life and vehicle testing environments.” – Business sector participant

RESEARCH OUTCOMES

- The training strengthened knowledge and practical skills in monitoring air pollution and traffic noise through theory and hands-on activities.
- Participants gained experience using modern equipment and interpreting environmental data in indoor and outdoor settings.
- The activity promoted cooperation between academia, students, and the business sector, encouraging knowledge exchange.
- Overall, the workshop supported capacity building for environmental protection, sustainable transport, and climate sustainability initiatives.

WHY IT MATTERS

This initiative equips participants with practical skills and knowledge to assess and manage air quality and noise pollution, directly supporting environmental protection and sustainable transport initiatives. Fostering collaboration between academia, students, and the business sector, it promotes evidence-based decision-making and strengthens local capacity to address climate and pollution challenges effectively.

POLICY RELEVANCE

The results support:

- evidence-based environmental monitoring for informed local and institutional decision-making
- implementation of sustainable transport and climate protection measures
- strengthening cross-sector collaboration between academia, industry, and students
- alignment with European Green Deal objectives and national sustainability policies

INTERNSHIP OF MSC STUDENT OF ENVIRONMENTAL ENGINEERING AT THE ECODES CONSULTANCY

This case study presents the internship of an MSc student in Environmental Engineering at EcoDES Consultancy in Albania. The internship focused on waste management, circular economy, and sustainable urban development. The student contributed to regional initiatives on establishing Waste Management Associations in the Western Balkans, supported the preparation of local waste management plans, developed a Strategic Environmental Assessment report, and participated in data collection for Extended Producer Responsibility (EPR) implementation. Additionally, she designed a roadmap for transforming used-clothes markets in Elbasan into socially inclusive and environmentally sustainable models. Through workshops, field visits, and community engagement, the internship strengthened the connection between academic knowledge and real-world sustainability challenges. The experience enhanced professional skills in data analysis, strategic planning, and public communication, while contributing to green transition and climate resilience efforts in Albania and the region.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- Are the data related to waste generation, importers, and product categories limited or fragmented, particularly in the context of Extended Producer Responsibility (EPR) implementation?
- Is the community engagement and communication, especially when working on socially sensitive projects such as the transformation of used-clothes markets in Elbasan?
- Ensuring that environmental objectives were aligned with social inclusion and economic realities required a balanced and context-sensitive approach.

LOCAL INSTITUTIONS BENEFITS' FROM THE COLLABORATION:

- Additional analytical and research support.
- Development of visual communication materials.
- Structured data on importers for EPR-related implementation.
- Support in organizing workshops and community events.
- Strengthened collaboration with academic institutions.

METHODOLOGY EMPLOYED

- Field visits to waste management facilities, including recycling points, landfills, and treatment plants
- Data collection from major commercial centers to identify importers relevant to Extended Producer Responsibility (EPR) implementation
- Online research and database development to classify products into three categories: packaged products, electrical and electronic equipment (EEE), and batteries/accumulators
- Preparation of a Strategic Environmental Assessment (SEA) Report for the Municipality of Roskovec
- Preparation of a transformation roadmap for used-clothes markets in the Municipality of Elbasan



QUOTES

- “This internship allowed me to apply academic knowledge in real environmental projects and understand how circular economy principles are implemented in practice.” - Student Participant

RESEARCH OUTCOMES

- Hands-on experience in environmental planning and waste management
- Knowledge of Extended Producer Responsibility and circular economy models
- Skills in data analysis, structuring, and performance indicators
- Experience organizing workshops and presenting to diverse audiences
- Stronger communication with public institutions and local communities
- Deeper understanding of energy consumption, product life cycles, and environmental impact

WHY IT MATTERS

The importance of integrating technical, social, and institutional dimensions in environmental projects. The need for reliable data and structured monitoring systems. The value of regional cooperation in addressing common sustainability challenges. The role of community engagement in ensuring successful policy implementation.

POLICY RELEVANCE

- Contributing to strategic documents such as Local Waste Management Plans and Strategic Environmental Assessment (SEA) reports
- Developing a Strategic Environmental Assessment (SEA) report for the Municipality of Roskovec
- Providing a foundation for future PPPs through the developed documents (waste management plans, SEA report, and roadmap)

CLIMATE CHANGE ADAPTATION STRATEGIES FOR URBAN AREAS: A CASE STUDY IN MUNICIPALITY OF TIRANA, ALBANIA

This case study presents a master's thesis which examined climate change impacts and adaptation strategies in Tirana, Albania. The study assessed urban vulnerabilities, including heat islands, flooding, and environmental degradation, using field measurements, GIS mapping, and analysis of municipal data. Key outcomes included identification of critical zones, evaluation of urban climate risks, and proposal of practical adaptation measures such as green spaces, reflective surfaces, and improved stormwater management. The research provides evidence-based recommendations for the Municipality of Tirana to enhance urban climate resilience and supports sustainable planning initiatives. The study also offered the student practical experience in environmental engineering, urban planning, and stakeholder engagement.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- What are the main climate change vulnerabilities affecting urban areas in Tirana?
- How do urban heat islands, flooding risks, and land-use changes affect environmental conditions in the city?
- Which climate adaptation strategies can support sustainable urban development?
- How can academic research support municipal climate planning and decision-making?

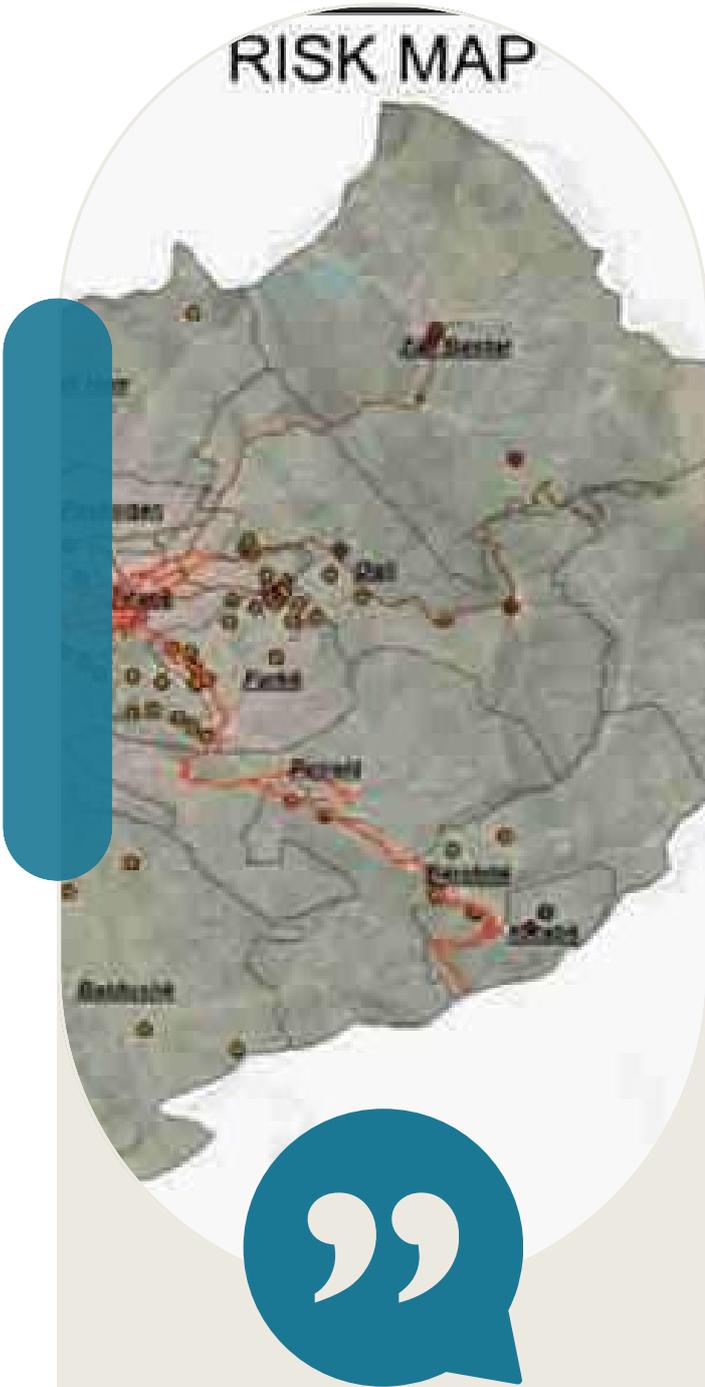
LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Access to evidence-based analysis of climate risks.
- Identification of urban heat island zones and flood-prone areas.
- Evidence-based recommendations for urban climate adaptation.
- Identification of priority areas for intervention to reduce heat stress and flood risks.
- Support for sustainable urban planning and climate adaptation strategies.

METHODOLOGY EMPLOYED

The research combined environmental monitoring, spatial analysis, and policy review, including:

- Field temperature measurements in selected urban locations.
- GIS mapping to identify urban heat island hotspots.
- Analysis of environmental indicators and temperature trends.
- Review of municipal planning documents and climate policies.
- Assessment of flood risks and environmental vulnerabilities.



QUOTES

- “This internship allowed me to apply academic knowledge in real environmental projects and understand how circular economy principles are implemented in practice.” - Student representative
- “Collaboration with universities helps municipalities develop better evidence-based climate strategies.” - Municipality Representative

RESEARCH OUTCOMES

- Identification of urban heat island hotspots in densely built areas of Tirana.
- Evidence of the link between urbanization, green space, and higher temperatures.
- Mapping of areas vulnerable to flooding and environmental stress.
- Proposal of adaptation measures, including:
 - Urban greening and green infrastructure
 - Permeable and reflective construction materials
 - Climate-sensitive urban planning
 - Early warning systems and risk monitoring

WHY IT MATTERS

As cities like Tirana grow rapidly, their exposure to climate-related risks — heat waves, flooding, environmental degradation — grows with them. This case study has shown that spatial analysis and scientific data are practical tools for informing better adaptation decisions, and that student-led research has a genuine role to play in that process.

POLICY RELEVANCE

The findings support policies that promote:

- Climate-responsive urban planning
- Expansion of urban green infrastructure.
- Use of cool and permeable materials in construction
- Improved flood risk management systems.
- Data-driven environmental decision-making within the Municipality of Tirana

STRENGTHENING EIA CAPACITY THROUGH PROFESSIONAL INTERNSHIP AT THE MINISTRY OF TOURISM AND ENVIRONMENT

This case study presents a professional internship conducted at the Ministry of Tourism and Environment in Albania, focusing on Environmental Impact Assessment (EIA) procedures. Through collaboration with the Polytechnic University of Tirana, the internship enabled an Environmental Engineering student to apply academic knowledge to real-world sustainability challenges. The student participated in reviewing environmental permit applications, analyzing EIA reports, and coordinating with national and regional authorities. A significant contribution was made to the assessment of a coastal tourism development project, with emphasis on biodiversity and groundwater protection. The case highlights the value of experiential learning, institutional cooperation, and capacity building in environmental governance. It demonstrates how structured internships can support climate resilience, sustainable development, and preparation of future professionals for green transition goals.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How are EIA procedures implemented in practice within the Ministry of Tourism and Environment?
- What skills and competencies do environmental engineering students gain through institutional internships?
- How can university-government collaboration strengthen environmental governance and EIA capacity in Albania?
- How do internship programs contribute to climate-resilient and sustainable development practices?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

For Ministry of Tourism and Environment

- Additional analytical support in reviewing environmental documentation.
- Strengthened collaboration with academic experts and students.
- Support for capacity building in environmental permitting and assessment.
- Opportunities for applied research in environmental governance and EIA implementation.

METHODOLOGY EMPLOYED

The internship applied a learning-by-doing and case-study approach, including:

- Review of EIA reports and environmental permit applications.
- Analysis of project environmental impacts and mitigation measures.
- Participation in institutional evaluation procedures for development projects.
- Observation of administrative workflows and consultation processes.
- Use of digital governance tools such as the e-Albania environmental application system.



QUOTES

- “This internship allowed me to apply academic knowledge in real environmental projects and understand how circular economy principles are implemented in practice.” - Student Participant

RESEARCH OUTCOMES

- Improved EIA workflows, procedural efficiency, and university–Ministry collaboration
- Immediate practical support to institutional activities
- Strong replication potential and long-term capacity building in environmental governance
- Clear procedures, inter-institutional coordination, professional training, and public participation as key drivers of effective environmental decision-making

WHY IT MATTERS

This case directly contributed to 1FUTURE objectives by promoting sustainability, climate resilience, and green transition through experiential learning. It demonstrated how internships can foster environmentally responsible decision-making and institutional collaboration. It promoted climate-resilient development in Albania and the Western Balkans.

POLICY RELEVANCE

- Strengthening institutional capacity in EIA review and environmental permitting.
- Promoting structured internships within environmental governance institutions.
- Enhancing inter-institutional cooperation between universities and government authorities.
- Aligning national environmental practices with European environmental directives and sustainability policies.

SUSTAINABILITY OF OXYGENATION TECHNOLOGIES INTEGRATED INTO DRIP IRRIGATION SYSTEM

This case study evaluates the environmental sustainability of integrating oxygenation technology into a drip irrigation system in a commercial lemon orchard in south-eastern Spain. Using Life Cycle Assessment (LCA) methodology according to ISO 14040/14044 standards, the study quantified the environmental impacts of adding an oxygen injection unit to an existing fertigation system. Results indicated that the oxygenation subsystem accounted for approximately 22% of the environmental burden within the irrigation infrastructure. However, when assessed within the broader citrus production system, its contribution decreased to below 5% of total impacts. Electronic components were identified as the primary environmental hotspot, suggesting opportunities for eco-design improvements. Developed within the 1FUTURE framework, this collaboration between academia and industry supports climate-resilient agriculture, sustainable water management, and green transition objectives. The case demonstrates how life cycle thinking can guide responsible adoption of emerging irrigation technologies in semi-arid regions.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- Does integrating oxygenation technology into drip irrigation improve sustainability in agricultural systems?
- What is the environmental footprint of the oxygenation subsystem compared with conventional irrigation infrastructure?
- Which materials or components create environmental hotspots within the irrigation system?
- Can Life Cycle Assessment (LCA) support decision-making for sustainable agricultural technologies?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

For PUT, Technical University of Cartagena and partner farm:

- Strengthened research capacity in environmental impact assessment and LCA modelling.
- Integration of sustainable agriculture topics into environmental engineering education.
- Identification of design improvements and environmental hotspots.
- Support for alignment with EU sustainability and green transition goals.

METHODOLOGY EMPLOYED

- Life Cycle Assessment (LCA) conducted in accordance with ISO 14040 and ISO 14044 standards
- Functional unit defined as 1 hectare of lemon production per year
- System boundaries encompassing raw material extraction, manufacturing and transport, installation and operation, and end-of-life treatment
- Life Cycle Inventory (LCI) built from primary farm data and secondary sources (Ecoinvent 3.10 and AGRIBALYSE 3.1)
- Impact assessment (LCIA) performed using the ReCiPe 2016 method in OpenLCA



QUOTES

- “The internship allowed me to apply Life Cycle Assessment tools to evaluate real agricultural technologies and understand sustainability trade-offs.” - Student Participant

RESEARCH OUTCOMES

Key findings included:

- Oxygenation subsystem contributed $\approx 22\%$ of climate change impact within the irrigation infrastructure.
- When assessed within the entire citrus production system, the contribution dropped to below 5%.
- Electronic components (circuit boards, sensors, LCD screens) had the highest environmental intensity.
- Structural materials such as PVC, PE, and steel showed significantly lower environmental impacts.

The study highlighted opportunities for eco-design improvements and reduction of electronic components.

WHY IT MATTERS

Irrigation technologies are essential for agriculture in water-scarce regions. Sustainable innovation requires evaluating both agronomic benefits and environmental costs. Life cycle thinking helps prevent hidden environmental trade-offs in technological solutions. Scientific assessment supports climate-resilient agriculture and efficient water use.

POLICY RELEVANCE

The findings support policies that promote:

- Sustainable irrigation technologies in semi-arid agricultural regions.
- Integration of life cycle assessment in agricultural innovation evaluation.
- Adoption of eco-design principles in precision agriculture technologies.
- Knowledge transfer between EU and Western Balkan institutions.

INTEGRATING ENVIRONMENTAL ENGINEERING EXPERTISE INTO SUSTAINABLE CONSTRUCTION PRACTICE - INTERNSHIP AT KONTAKT AL

This case study presents a Master's internship in Environmental Engineering conducted at Kontakt al, a construction company operating in Albania. The transition toward sustainable construction practices requires stronger collaboration between Higher Education Institutions (HEIs) and the private sector. This case study analyzes the design, implementation, outcomes, and impact of the internship, focusing on the integration of environmental engineering principles into construction site operations. The findings demonstrate the added value of practice-oriented learning in strengthening green competencies, improving environmental compliance, and enhancing university–industry cooperation. The case provides a replicable model for integrating environmental sustainability into the construction sector in emerging economies. The internship strengthened environmental compliance practices and supported green transition goals in the construction sector.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can structured internships support the integration of environmental engineering knowledge into real-world construction practices?
- To what extent can collaboration between higher education institutions and private companies improve environmental compliance and sustainability practices in the construction sector?
- What competencies do environmental engineering students develop through practical engagement in construction site environmental monitoring?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- The collaboration introduced environmental engineering expertise into construction site operations
- Contributing to improved environmental monitoring practices
- Better documentation procedures
- Increased awareness of sustainability requirements.

METHODOLOGY EMPLOYED

The methodology included:

- Review of environmental permits and Environmental Impact Assessment (EIA) documentation
- Direct field observations on construction sites
- Monitoring of dust emissions, noise levels, and construction activities
- Assessment of construction waste management and segregation practices
- Development of environmental monitoring and reporting templates
- Reflection and evaluation of the internship experience through academic supervision



QUOTES

- "The internship provided valuable insight into how environmental engineering principles are applied in real construction projects. It allowed me to connect theoretical knowledge with practical environmental monitoring and management practices." - Student participant

RESEARCH OUTCOMES

- The study identified gaps between environmental documentation and its practical implementation on construction sites, especially in monitoring and reporting processes.
- The internship supported the development of environmental monitoring templates and practical recommendations to improve company practices.
- Structured internships proved effective in building key skills such as environmental monitoring, data management, teamwork, and professional communication.

WHY IT MATTERS

It demonstrates that practice-oriented education and structured internships can play a critical role in preparing environmental engineers capable of addressing real environmental challenges. By connecting academic training with industry practice, such initiatives contribute to the development of skilled professionals who can support sustainable construction and environmental compliance.

POLICY RELEVANCE

- Encourage structured internship programs within engineering education
- Promote stronger collaboration between universities and private sector companies
- Strengthen environmental monitoring and compliance systems in construction projects
- Integrate green and digital competencies into engineering curricula

ASSESSMENT OF COAL MINE POLLUTION LOAD ON THE MULTIPURPOSE MODRAC RESERVOIR

The case study was developed in collaboration with Public Enterprise (JP) for Water Management Spreča d.d. Tuzla - company responsible for the regulation and maintenance of the multipurpose "Modrac" reservoir. Complex ecological risks and degradation of the multipurpose "Modrac" reservoir caused by long-term mining activities in the area of the Gostelja and Oskova rivers were analyzed. Using a multidisciplinary approach that includes the ERA (Ecological Risk Assessment) model, ArcSWAT for hydrological modeling, and MIKE 21 for sediment transport simulation, this research quantifies the loss of useful reservoir volume of over 40%. Study also offers concrete solutions through a proposal for introducing closed water circulation systems in mining separation plants, construction of modern sedimentation basins, and application of phytoremediation.

RESEARCH QUESTIONS GUIDING THIS STUDY:

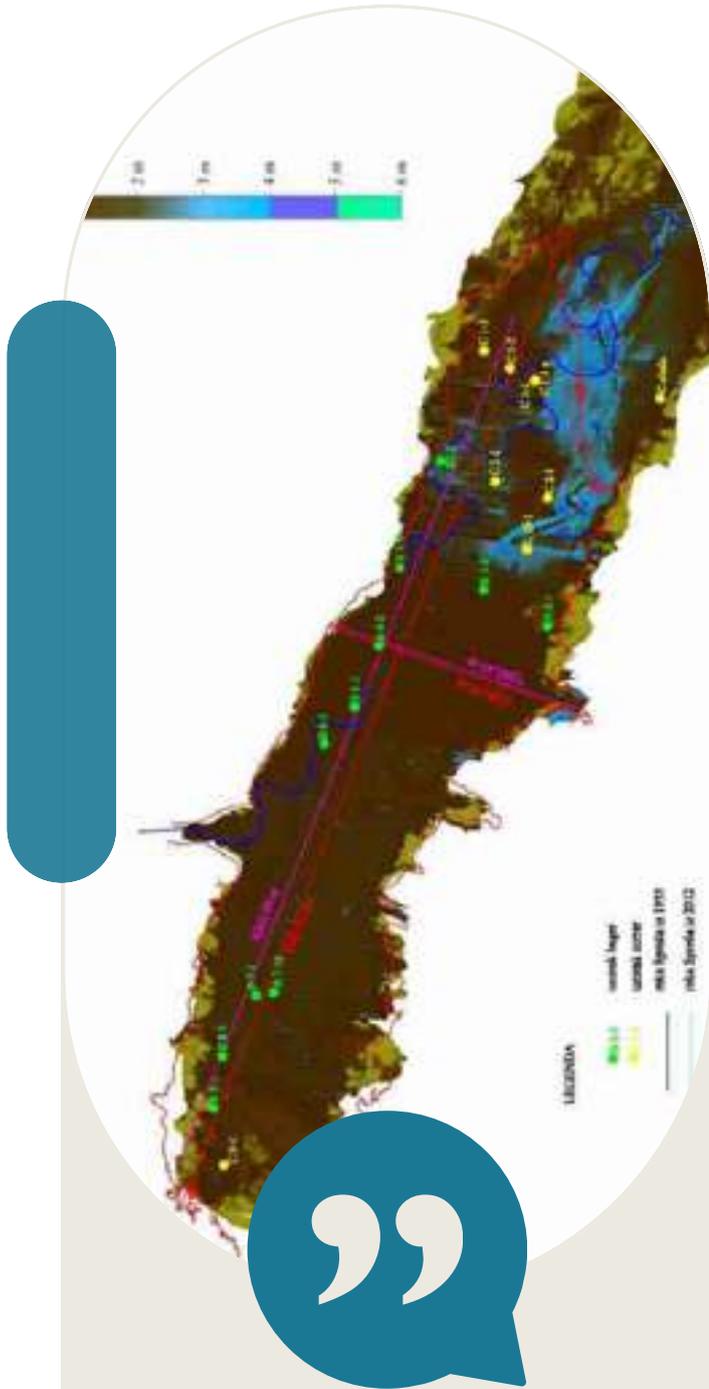
- What are the primary anthropogenic drivers contributing to the critical degradation of water quality at the Spreča River confluence, and how do they impact downstream water usability?
- The research focus is directed at the impact of the "Đurđevik" and "Banovići" brown coal mines, whose process wastewater carries significant quantities of suspended coal particles and heavy metals (lead, cadmium, mercury) directly into the reservoir.

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Scientific basis for dam safety and functionality (defining safety parameters, sediment monitoring);
- Optimization of water supply and industrial systems (water quality prediction, reduction of treatment costs);
- Tools for strategic management and crisis response (application of hydrodynamic models, efficient monitoring);
- Support in regulatory and legal proceedings (argumentation against polluters);
- Preservation of socio-economic potential (development of tourism and fishing, long-term sustainability).

METHODOLOGY EMPLOYED

- Field Research: Water sampling from the Gostelja, Oskova, and Spreča rivers, as well as laboratory analyses for the presence of heavy metals and organic pollutants
- ArcGIS, ArcSWAT, and hydrodynamic models such as HEC-RAS and MIKE 21 were used for modeling pollutant dispersion dynamics and visualization
- ERA Model: A tool for systematic identification and evaluation of potential negative impacts of mining activities



QUOTES

- “We learned that protecting the Modrac reservoir isn’t about stopping industry—it’s about re-engineering it. Designing closed-loop water systems is how we bridge the gap between keeping mining jobs and securing the region’s drinking water.” – Student participant
- “Restoring the Modrac Reservoir is a strategic necessity for reviving local tourism and sustainable industry.” – Municipal representative

RESEARCH OUTCOMES

- Identifies the Spreča River confluence as a critical pollution hotspot and quantifies reservoir capacity loss from mining sediment.
- Validates digital models (ArcGIS, MIKE 21) and defines ecological flow rates for improved system management.
- Establishes a technical basis for reservoir revitalization, industrial modernization with closed-loop systems, and real-time early warning platforms.
- Provides a replicable framework for watershed management, supporting the restoration of water supply and tourism functions.

WHY IT MATTERS

This research is providing a scientific roadmap for the survival of the Modrac reservoir; helps to restore the reservoir’s economic potential for tourism and local industry. Furthermore, by defining exact ecological flow rates the study protects the downstream biodiversity that communities depend on, offering a high-tech blueprint that can be replicated to save other threatened watersheds across B&H.

POLICY RELEVANCE

The results support:

- Resource Security: Protects the region’s primary drinking water supply against industrial siltation and climate-related water scarcity
- Mandatory Modernization: Justifies updating environmental permits to require closed-loop water systems in coal separation plants
- Legal Compliance: Aligns national water management with the EU

ENVIRONMENTAL RISK MANAGEMENT IN STONE QUARRYING

This case study analyzes complex aspects of environmental risk management arising from surface mining of technical-construction stone (dolomite). The research focus is on the "Glavica" quarry near Bužim. The paper examines the effectiveness of applied technical and organizational measures in the context of domestic legislation and international ISO 14000 series standards.

Results show that the application of modern dust suppression systems (water mists) and closed process water circulation systems directly reduces the ecological footprint of exploitation to acceptable levels. It was identified that noise and mineral dust are the main short-term risks, while landscape degradation is the key long-term challenge. The study confirms that consistent application of environmental management plans can achieve compliance with strict legal norms even in sensitive natural areas.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- Identification and evaluation of environmental impacts of dolomite extraction, including impacts on soil, water, air, and the local community.
- How to minimize the negative impacts of surface mining at the Glavica quarry (dust, noise, vibrations, land degradation) in a region with significant natural values, while ensuring sustainable development and compliance with legal regulations?

LOCAL INSTITUTIONS BENEFITS FROM THE COLLABORATION:

- Legal Compliance: Ensures full adherence to Una-Sana Canton and Federal laws,
- Resource Security: Protects local watercourses and public infrastructure from industrial contamination,
- Community Stability: Maintains public health by controlling dust and noise emissions,
- Future Land Value: Guarantees that the site remains a viable ecological asset through successive reclamation and biodiversity protection.

METHODOLOGY EMPLOYED

- A combined approach was applied, including descriptive, analytical, statistical, and comparative methods.
- Data from air quality monitoring, noise measurements, and wastewater testing were used



QUOTES

- "My research demonstrates that by integrating ISO standards with rigorous technical controls, we can transform traditional mining into a sustainable practice that protects both industrial interests and our natural heritage." – Student participant
- "Transformation of environmental protection from a "cost" into a strategic investment ensures business stability, better market position, and long-term resource sustainability." – Company representative

RESEARCH OUTCOMES

- Maps critical risk points (dust, noise, wastewater) and establishes a systematic monitoring framework.
- Maintains PM10 concentrations and noise levels within legal limits through technical solutions such as water mist systems and optimized blasting.
- Implements a closed-loop water system with settling tanks and grease separators, achieving zero pollution of local watercourses.
- Demonstrates a scalable model for environmentally responsible mining across Bosnia and Herzegovina.

WHY IT MATTERS

This research proves that heavy industry can operate in total harmony with strict environmental standards, replacing the "profit vs. nature" conflict with a sustainable, ISO-backed framework. Ultimately, these results secure a "social license to operate," ensuring that industrial growth protects both the local ecosystem and the long-term health of the community

POLICY RELEVANCE

- Provides a "Best Available Techniques" (BAT) template for PM10 and water management that regulators can mandate in all future mining permits.
- Demonstrates a practical path for B&H to meet EU environmental directives through proven ISO-standard applications.
- Offers a "Social License" policy framework that balances industrial profit with community health and mandatory land reclamation.

IMPACT OF INFORMATION TECHNOLOGIES ON THE EFFICIENCY OF RED CROSS SOCIETY OF BOSNIA AND HERZEGOVINA HUMANITARIAN RESPONSE

This case study investigates how the use of GIS and digital platforms (KoBo, Power BI) optimizes Red Cross operations during extreme events. By analyzing the "Peace March" route, the work demonstrates that digital transformation of humanitarian response is not just a matter of modernization, but a key factor in reducing health and life risks for participants and rescuers. The developed model is universal. It can be applied to searches for missing persons, flood response, or migrant camp management, making the RC Society of BiH a leader in digitalization of the humanitarian sector in the region.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How does the implementation of real-time digital tools (KoBo Collect) reduce data processing latency and improve resource allocation during high-risk humanitarian events?
- In what ways can spatial analysis and terrain modeling (QGIS) identify critical risk zones to enable the strategic pre-positioning of first-aid teams?
- What are the key benefits and challenges of integrating low-code/no-code IT solutions into traditional humanitarian response frameworks in Bosnia and Herzegovina?

LOCAL INSTITUTIONS BENEFITS FROM THE COLLABORATION:

- Digitalization of the reporting process, more precise mapping of critical points on the route, and creation of a database for future planning and injury prevention.
- Developed tool for precise performance measurement.
- The data showed the exact number of interventions, which is crucial for budget justification and resource planning for subsequent years.

METHODOLOGY EMPLOYED

A combination of quantitative methods and digital tools:

- Spatial analysis (QGIS): Digital terrain processing (DEM) for creating slope maps and identifying "bottlenecks" on the route.
- Digital collection (KoBo Collect): Creation of smart forms for mobile devices that work in offline mode, enabling volunteers to enter patient data in less than 30 seconds.
- Analytics (Power BI): Automatic data processing and creation of visual reports (dashboards) for management.



QUOTES

- “Applying GIS and 'low-code' tools to a live humanitarian scenario proved that engineering isn't just about maps—it's about using data to directly protect people in real-time.” – Student participant
- “Digitalization has replaced slow paper trails with instant dashboards, giving us the precise performance metrics we need to plan resources and prove our impact to stakeholders.” – Red Cross representative

RESEARCH OUTCOMES

- Demonstrates that integrating GIS (QGIS), mobile data collection (KoBo Collect), and real-time analytics (Power BI) improves humanitarian response in high-risk events.
- Enhances operational efficiency while reducing human error through low-code digital transformation.
- Provides a scalable model applicable to other crises, such as flood response and migrant management.
- Bridges the gap between academic engineering and real-world, life-saving field operations.

WHY IT MATTERS

This work is critical because it shifts humanitarian response from reactive to predictive. By replacing slow paper trails with instant digital transparency, the project provides evidence needed to justify budgets and optimize resource allocation. Ultimately, it proves that "low-code" engineering tools can be directly translated into life-saving field operations, creating a scalable safety blueprint for any large-scale crisis.

POLICY RELEVANCE

- Established a technical framework for integrating real-time GIS data into national emergency response structures.
- Provided precise intervention metrics to justify public funding and optimize resource allocation based on data.
- Offers a replicable digital blueprint for national-level emergencies, including floods, search and rescue, and migrant management.

POSSIBILITIES FOR MITIGATING ENVIRONMENTAL IMPACTS OF ABANDONED MINING WORKS

This case study investigates the hazardous potential and environmental impact of five key abandoned mining sites in the Municipality of Vareš (Open Pit "Smreka", Open Pit "Brezik", Open Pit "Veovača", "Droškovac" underground mine, and Tisovci flotation tailings). The research focus is on identifying pollution sources that emerged after the cessation of mining activities in 1992 without an adequate closure and remediation plan. The research encompassed a multidisciplinary approach including analysis of historical documentation, field in-situ testing, and laboratory analysis of water, soil, and sediment samples. A scoring method for ranking "hotspot" locations was applied for risk level assessment, while the methodological framework was aligned with risk management standards (ISO 31010) and the objectives of the 1FUTURE project.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can a multidisciplinary risk-scoring model identify environmental "hotspots" and guide the remediation of abandoned mining sites?
- What is the specific hazardous potential of Vareš's unremediated mines on local soil and water quality after 30 years of neglect?
- To what extent does applying ISO 31010 standards to abandoned sites provide a scientific basis for securing international environmental funding?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Access to funding: the concrete data and project frameworks needed to apply for EU Green Deal and IPA funds
- Identified high-risk landslides and dam instabilities, directly informing civil protection
- Created a roadmap to turn ecological hazards, like the Smreka lake, into tourist or recreational zones
- Provided municipality evidences to demand higher environmental standards from new mining investors

METHODOLOGY EMPLOYED

The research was conducted in four phases:

- documentation collection,
- fieldwork (in-situ testing),
- laboratory testing of water, soil, and sediment samples, and
- office processing and interpretation of results



QUOTES

- "Identifying these 'invisible' pollutants and mapping the high-risk hotspots showed me that environmental engineering is about more than just data—it's about creating a safe, sustainable foundation for a community's future." – Student participant
- "Understanding the instability of these dams and pits is a game-changer for our civil protection. We now have the precise information needed to move from responding to disasters to preventing them entirely." – Local community representative

RESEARCH OUTCOMES

- Systematizes data on mining "hotspots," identifying critical ecological hazards such as acid mine drainage and high concentrations of heavy metals.
- Identifies Open Pit "Veovača" and "Smreka" as priority sites for urgent remediation due to submerged machinery and unstable tailings dams.
- Highlights a significant legal gap in mine closure regulations.
- Establishes a scientifically based ranking system to guide future interventions.

WHY IT MATTERS

By documenting the "invisible" pollutants and structural risks, research provides the scientific foundation needed to secure international EU Green Deal funding that the local budget cannot provide. It shifts the narrative for Vareš from a site of ecological risk to a model for "green mining" and sustainable regeneration, ensuring that future investments are tied to strict environmental accountability and community safety.

POLICY RELEVANCE

- Provides the scientific basis to synchronize local laws with the EU Green Deal and "Zero Pollution" standards.
- Establishes the documented "concrete figures" required to secure international environmental grants.
- Integrates tailings and dam stability into Civil Protection protocols to mitigate landslide and contamination risks.

FIRE RISK MANAGEMENT IN THE CEMENT INDUSTRY

This case study analyzes fire risk management in cement industry using the example of Lukavac Cement d.o.o. through collaboration with the University of Tuzla. The focus of the work was on identifying critical hazards within the technological process of cement production, particularly in segments that use alternative fuels (RDF, waste oils) and coal. Using a modified risk assessment method and QGIS software, the team mapped key protection infrastructure elements and identified high-risk zones. The study results provide concrete prevention recommendations, such as automation of extinguishing systems (deluge) and installation of new fire alarm networks. The approach aligned with ISO 31010 for risk assessment and the Fire Protection Law of the Federation of BiH increases workplace safety and directly supports sustainability and green transition goals by ensuring the safe use of alternative energy sources in heavy industry

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How does the integration of alternative fuels alter the fire risk profile of a cement production facility compared to traditional pulverized coal systems?
- To what extent do the chemical and physical properties of RDF stored at Lukavac Cement contribute to the probability of spontaneous combustion or dust explosions?
- Based on a 5-year analysis of historical fire data at Lukavac Cement, what are the primary discrepancies between predicted risk levels and actual incident occurrences?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- The added value for the company: technical improvements, economic security, compliance with standards, and an innovative approach to risk management.
- Specific "improvement opportunities" were defined, including automation of deluge systems, expansion of the hydrant network toward coal deposits, and installation of a fixed CO₂ system in the main transformer station.

METHODOLOGY EMPLOYED

- A modified fire risk assessment method was applied, which includes grading the probability of fire occurrence and evaluating the severity of possible consequences.
- QGIS software (Quantum GIS) was used for visualization and spatial analysis for mapping hydrants, fire alarm systems, and critical zones.



QUOTES

- “Bridging the gap between ISO 31010 theory and the operational heat of a cement plant was transformative. Using QGIS to map the risk at the coal mill turned abstract safety concepts into a visual, urgent reality that can actually save lives and asset.” – Student participant
- “As we transition to alternative fuels like RDF, our risk profile evolves. This study provides the technical rigor we need to visualize our hydrant networks and hazard zones digitally.” – Business representative

RESEARCH OUTCOMES

- Develops a formalized fire risk inventory that quantifies hazards and identifies high-vulnerability zones such as RDF halls and coal mills.
- Uses QGIS to map risks, hydrant networks, and fire alarm gaps, creating a dynamic spatial safety model.
- Transforms static safety plans into a digital, data-driven monitoring system.
- Establishes a correlation between incident history and financial impact through a risk-ranking matrix.
- Prioritizes protection of personnel, property, and the environment based on calculated damage potential.

WHY IT MATTERS

Quantifying risk moves the company from vague estimates to calculated financial resilience. By aligning with ISO 31010, this research ensures company meets international benchmarks while providing management and responders with a QGIS visual tool for real-time crisis intervention. This framework future-proofs the facility by establishing a safety standard for the complex transition to alternative fuels and green energy.

POLICY RELEVANCE

- Integrates ISO 31010 into internal industrial regulations, shifting from periodic checks to data-driven risk management
- Aligns company operations with EU and national safety directives
- Mandates GIS-based mapping as the new institutional standard for emergency planning and hydrant network management

SUSTAINABLE RESOURCE MANAGEMENT IN THE BEVERAGE INDUSTRY

This case study examines sustainable resource management practices in the beverage sector through collaboration between Luarasi University and Hysenbelliu Group. Developed within the Erasmus+ 1Future project : Building Climate Resilient Communities in WB & EU, the study explored how large companies manage natural resources such as water, energy, and packaging materials in their production processes. Students participating in the short-term intensive course analyzed current sustainability practices and identified opportunities for improving resource efficiency. The case study highlights the importance of cooperation between academic institutions and private companies in promoting sustainable production and climate-resilient business practices.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can large beverage producers improve resource efficiency in their production processes?
- What role do sustainable resource management practices play in reducing environmental impact?
- How can collaboration between universities and businesses support sustainable innovation?

LOCAL INSTITUTIONS BENEFITS FROM THE COLLABORATION:

- Strengthening collaboration between universities and private sector companies.
- Providing students with practical learning experiences connected to real business challenges.
- Promoting research and knowledge exchange related to sustainability and climate resilience.

METHODOLOGY EMPLOYED

- Qualitative case study approach
- Participation in workshops and collaborative research activities during the intensive course
- Literature review and sustainability analysis of production processes
- Group discussions focused on resource management practices
- Academic mentoring throughout the analysis and development of recommendations



QUOTES

“This collaboration allowed students to explore real sustainability challenges faced by companies and propose innovative solutions.” – Academic Mentor

“The experience helped us understand how resource management decisions affect environmental sustainability in industry.” – Student participant

RESEARCH OUTCOMES

- Produces a sustainability assessment report identifying opportunities to improve resource efficiency in beverage production.
- Recommends optimizing water use, improving energy efficiency, and promoting recyclable packaging materials.
- Highlights the importance of integrating sustainability principles into industrial production processes.

WHY IT MATTERS

Improving resource efficiency in manufacturing industries plays a key role in reducing environmental impact and supporting climate resilience. This case study demonstrates how collaboration between universities and businesses can contribute to sustainable innovation and more responsible management of natural resources.

POLICY RELEVANCE

- Supports the promotion of circular economy and sustainable production practices.
- Encourages stronger cooperation between academic institutions and industry.
- Contributes to climate resilience and sustainable development policies in the Western Balkans region.

CIRCULAR ECONOMY PRACTICES IN BEER PRODUCTION

This case study explores the application of circular economy principles in the beverage industry through the example of Birra Korça, one of Albania's most recognized beer producers. Developed within the Erasmus+ 1Future project, the study involved students from Luarasi University participating in an intensive course on Climate and the Circular Economy. The project focused on analyzing sustainability challenges in beer production, including packaging waste, water consumption, and energy use. Through research and collaborative workshops, students examined opportunities for applying circular economy practices that could help reduce environmental impact and improve resource efficiency.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can circular economy principles be applied in beer production?
- What strategies can reduce packaging waste in the beverage industry?
- How can sustainable production practices improve environmental performance?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Enhanced collaboration between universities and local industries.
- Increased student engagement in sustainability research.
- Promotion of innovative ideas related to circular economy practices.

METHODOLOGY EMPLOYED

- Conducting case analysis using secondary data, industry reports, and sustainability research
- Organizing workshops and group discussions to identify circular economy opportunities within beverage production
- Facilitating collaborative learning through academic mentorship and guidance in developing sustainability recommendations

QUOTES

“The case study helped students connect theoretical knowledge with real sustainability challenges in industry.” – Academic Supervisor
“We learned how circular economy concepts can be applied in real production processes.” – Student participant



RESEARCH OUTCOMES

- Identifies circular economy solutions for beverage production, including increased glass recycling, improved packaging efficiency, and reuse of production by-products.
- Highlights opportunities to reduce waste and improve overall resource efficiency within the production process.
- Encourages the adoption of sustainable practices aligned with circular economy principles in the beverage industry.
- Strengthens students' analytical and research skills in addressing sustainability challenges.

WHY IT MATTERS

The beverage industry is highly resource intensive, particularly in terms of water and packaging materials. Applying circular economy principles can significantly reduce waste and environmental impact while improving the efficiency of production processes.

POLICY RELEVANCE

- Supports national and regional policies promoting circular economy practices.
- Encourages sustainable production models in the manufacturing sector.
- Contributes to environmental protection and climate resilience strategies.

SUSTAINABLE PACKAGING AND RESOURCE EFFICIENCY

This case study examines sustainable packaging and resource efficiency in beverage production using the example of Birra Tirana. Conducted within the Erasmus+ 1Future project at Luarasi University, the study focused on identifying strategies that beverage producers can use to reduce environmental impact through sustainable packaging solutions. Students participating in the intensive course on Climate and the Circular Economy analyzed packaging practices, recycling systems, and resource management approaches used in the beverage industry. The study demonstrates how innovative packaging strategies can contribute to more sustainable production systems.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can beverage producers reduce packaging waste through sustainable solutions?
- What role do recyclable materials play in sustainable production?
- How can resource efficiency improve environmental sustainability in manufacturing industries?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Strengthening cooperation between academia and the private sector.
- Creating opportunities for students to participate in applied sustainability research.
- Promoting innovation in environmental management practices.

METHODOLOGY EMPLOYED

- Case study research approach combining sustainability analysis and collaborative activities
- Examination of industry practices related to packaging materials, recycling systems, and environmental impact
- Group discussions focused on findings and sustainability implications



QUOTES

"This project demonstrated the importance of sustainable packaging in reducing environmental impact." – Academic Mentor

"Working on this case study helped us understand how businesses can contribute to environmental sustainability." – Student participant

RESEARCH OUTCOMES

- Develops recommendations to improve sustainability in beverage packaging.
- Promotes bottle return systems and increased use of recyclable materials.
- Supports improved resource efficiency in production processes.
- Encourages more sustainable practices within the beverage industry.

WHY IT MATTERS

Packaging waste represents one of the main environmental challenges in the beverage industry. Sustainable packaging solutions can significantly reduce waste and contribute to a circular economy.

POLICY RELEVANCE

- Supports environmental policies related to waste reduction and recycling.
- Encourages businesses to adopt sustainable packaging practices.
- Contributes to the transition toward circular economy models.

IMPROVING THE QUALITY OF BUILDING CONSTRUCTION IN A CONSTRUCTION COMPANY

This case study examines the improvement of construction quality at Explorer d.o.o. Kolašin through the application of sustainable construction principles. The study focuses on identifying key challenges in project implementation, including delays, quality deviations, and lack of coordination among construction participants, while proposing measures to improve efficiency and sustainability. It also evaluates the integration of environmentally responsible materials and practices in the construction process. Furthermore, the study assesses the impact of improved planning and communication on overall project performance. The findings aim to provide practical recommendations that can enhance both quality standards and long-term sustainability in similar construction projects.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can construction quality be improved through better coordination and project management?
- What role do digital tools and prefabricated elements play in improving construction efficiency?
- How can sustainable construction principles be integrated into everyday construction processes?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Access to practical recommendations for improving quality control and project management.
- Increased awareness of sustainable construction practices and energy-efficient solutions.
- Strengthened cooperation between academia and industry.

METHODOLOGY EMPLOYED

- Field observations at construction sites.
- Employee surveys and interviews.
- Analysis of internal documentation and project records.



QUOTES

“Collaboration with the Faculty of Civil Engineering team enabled us to identify key challenges in the construction process and receive useful recommendations to improve quality.” – Student participant

RESEARCH OUTCOMES

- Identifies key challenges in the construction process, including project delays, quality deviations, and poor coordination among participants.
- Highlights the impact of design changes and communication gaps on overall project performance.
- Proposes solutions such as increased use of prefabrication, improved digital project management, and additional employee training.
- Aims to enhance quality control, increase efficiency, and support more sustainable construction practices.

WHY IT MATTERS

Improving construction quality reduces errors, increases project efficiency and supports sustainable development in the construction sector.

POLICY RELEVANCE

- Promotion of sustainable construction practices
- Support for digital project management tools
- Strengthening cooperation between universities and companies

SMART CONSTRUCTION MANAGEMENT: DIGITAL TOOLS AND SUSTAINABLE PRACTICES

This case study explores how CG Construct improves construction quality through standardized procedures, digitalization, and the application of sustainable building principles. The research evaluates the role of digital technologies and green construction practices in improving project management and efficiency. It also examines how the adoption of standardized workflows enhances consistency and reduces errors during project execution. Additionally, the study considers the contribution of digital tools to better coordination and decision-making. The findings provide insights into practical approaches for increasing both operational efficiency and sustainability in the construction sector.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can digital tools improve construction quality and project coordination?
- What impact do sustainable construction technologies have on project efficiency?
- How can standardized procedures reduce construction errors and delays?

LOCAL INSTITUTIONS BENEFITS FROM THE COLLABORATION:

- Strengthened cooperation between academia and industry.
- Access to modern digital construction technologies.
- Improved opportunities for student training and professional development.

METHODOLOGY EMPLOYED

- Field observations at active construction sites.
- Data analysis from surveys and project documentation.
- Workshops and discussions with company staff.



QUOTES

"Collaboration with students from the Faculty of Civil Engineering brought a fresh perspective to our processes and concrete proposals for improving quality and sustainability." – Construct Representative

RESEARCH OUTCOMES

- Demonstrates that standardized procedures, digital tools, and sustainable technologies improve construction quality.
- Shows that BIM and ERP systems enhance project monitoring and team coordination.
- Highlights the role of energy-efficient technologies and recycled materials in reducing emissions.
- Supports improved sustainability in construction practices

WHY IT MATTERS

Digitalization and sustainable technologies are key drivers of modern construction and significantly contribute to higher efficiency and environmental responsibility.

POLICY RELEVANCE

- Promotion of digital transformation in construction
- Support for sustainable and energy-efficient buildings
- Encouragement of innovation in construction management

IMPROVING ENERGY EFFICIENCY IN RESIDENTIAL BUILDINGS

This case study analyzes the implementation of energy-efficient insulation solutions on a residential building through collaboration between students and Strudos d.o.o. The project focuses on identifying cost-effective solutions that reduce energy consumption and improve building performance. It also examines the practical application of insulation materials in real construction settings. Furthermore, the study evaluates the impact of these solutions on thermal comfort and long-term energy savings. The findings offer valuable insights into affordable strategies for enhancing energy efficiency in residential buildings.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How can improved insulation reduce energy consumption in residential buildings?
- Which insulation solutions provide the best balance between cost and efficiency?
- How can collaboration between universities and industry support sustainable construction?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Access to research results on energy-efficient building solutions.
- Development of practical implementation guidelines for insulation systems.
- Strengthened collaboration between academia and industry.

METHODOLOGY EMPLOYED

- Energy loss assessment of the building.
- Life-cycle and cost analysis of insulation materials.
- Pilot implementation and monitoring of energy consumption.



QUOTES

“Practical work on the project allowed me to connect theory with real application — I learned how to make rapid on-site decisions while maintaining quality.” – Student participant

RESEARCH OUTCOMES

- Implements a pilot insulation system on part of the building façade.
- Demonstrates an approximate 18% reduction in heating energy consumption.
- Develops a practical implementation protocol for insulation works.
- Establishes a quality control checklist for future applications.

WHY IT MATTERS

Improving thermal insulation reduces energy consumption, lowers operational costs and contributes to environmental sustainability.

POLICY RELEVANCE

- Promotion of energy-efficient building renovation
- Contribution to climate and sustainability goals
- Strengthening cooperation between universities and companies

ENHANCING CONSTRUCTION QUALITY THROUGH DIGITAL TOOLS AND SUSTAINABLE PRACTICES

This case study analyzes construction quality management at INTERMOST d.o.o. Podgorica and examines how sustainable construction principles and digital tools contribute to efficient and reliable project implementation. It also explores the role of standardized procedures in ensuring consistent quality across different project phases. Furthermore, the study evaluates how digital tools support monitoring, coordination, and decision-making processes. The findings provide practical insights into improving both efficiency and sustainability in construction project management.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- How do organizational procedures influence construction quality?
- What role do digital tools play in project monitoring and coordination?
- How can sustainable construction principles improve company competitiveness?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Access to practical insights into construction quality management.
- Strengthened collaboration between academia and industry.
- Empirical data for teaching and research.

METHODOLOGY EMPLOYED

- Employee surveys and structured data collection.
- Analysis of construction planning and supervision procedures.
- Evaluation of project management practices.



QUOTES

“Efficient communication and teamwork significantly influence the quality and safety of construction works.” – Intermost Representative

RESEARCH OUTCOMES

- Shows that the company operates with a stable quality management system based on defined procedures and supervision.
- Highlights the role of digital tools in improving coordination and monitoring of construction activities.
- Identifies external challenges such as material price fluctuations and labor shortages.
- Emphasizes the need to address these factors to maintain efficiency and project stability.

WHY IT MATTERS

Understanding how quality management functions in practice helps construction companies improve efficiency and maintain high standards.

POLICY RELEVANCE

- Promotion of sustainable construction principles
- Support for digitalization in construction management
- Encouragement of professional training in the sector

ENHANCING CONSTRUCTION QUALITY IN SMALL FIRMS: THE CASE OF M ROUTE

This case study explores how construction quality can be improved in a small construction company, M ROUTE, through practical management tools and operational improvements. It focuses on enhancing planning, supervision, and coordination processes to ensure better project execution and consistency in results.

The study identifies key root causes of construction problems within M ROUTE, including the lack of formal procedures, a shortage of qualified workers, and inconsistent documentation practices. It highlights how these issues negatively affect construction quality, increase the risk of errors, and reduce overall process efficiency.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- What operational weaknesses affect construction quality in small companies?
- How can simple quality management tools reduce errors and delays?
- What role can digital documentation play in improving construction processes?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Practical recommendations for improving quality management systems and construction practices.
- Introduction of digital documentation practices to enhance accuracy, transparency, and efficiency in project management.
- Strengthened collaboration between academia and industry, promoting knowledge transfer and the application of research-based solutions.

METHODOLOGY EMPLOYED

- Field observations conducted at construction sites to assess on-site practices and quality control procedures.
- Interviews with management and employees to gather insights on organizational structure, workflows, and existing challenges.
- Process mapping and SWOT analysis used to evaluate internal operations, identify strengths and weaknesses, and determine opportunities for improvement.



QUOTES

“Introducing short checklists and a nonconformity register helped us detect errors earlier.” – Student Participant

RESEARCH OUTCOMES

- Identifies root causes of construction problems, including lack of formal procedures, shortage of qualified workers, and inconsistent documentation.
- Highlights the impact of these issues on construction quality and process efficiency.
- Proposes practical tools such as checklists, standard operating procedures, and quality monitoring indicators.
- Supports improvements in construction processes and overall quality management.

WHY IT MATTERS

Simple organizational tools can significantly improve construction quality and reduce operational risks.

POLICY RELEVANCE

- Promotion of quality management systems in small companies
- Support for the gradual digitalization of construction processes
- Encouragement of sustainable construction practices

CONSTRUCTION QUALITY MANAGEMENT AND SUSTAINABLE PRACTICES

This case study examines construction quality management at ČELEBIĆ d.o.o. Podgorica, focusing on the company's internal systems and practices that influence the overall standard of building construction. It analyzes key organizational processes, including project planning, coordination between departments, and decision-making structures that contribute to efficient project execution, as well as quality control practices such as on-site supervision, material selection, and compliance with technical standards.

Furthermore, the study explores the company's approach to sustainable construction, including the use of environmentally responsible materials and energy-efficient solutions. It aims to identify strengths and areas for improvement that can enhance construction quality and ensure long-term durability of built structures.

RESEARCH QUESTIONS GUIDING THIS STUDY:

- What are the key weaknesses in the company's construction quality management?
- How can modern technologies improve project implementation?
- How can sustainable construction principles be better integrated into company operations?

LOCAL INSTITUTIONS' BENEFITS FROM THE COLLABORATION:

- Identification of key organizational challenges affecting construction quality and project efficiency.
- Development of practical, actionable recommendations for improving construction processes and quality management practices.
- Strengthening cooperation between academia and industry, fostering knowledge exchange and the application of research in real-world projects.

METHODOLOGY EMPLOYED

- Analysis of internal company documentation to assess existing procedures and quality standards.
- Surveys conducted among engineers and construction workers to gather insights on practical challenges and workflows.
- Interviews with company management, combined with field observations, to evaluate decision-making processes and on-site practices.



QUOTES

“Quality in construction must be managed throughout the entire project lifecycle.” – Čelebić Representative

RESEARCH OUTCOMES

- Challenges such as underdeveloped quality management systems, weak communication, and limited employee training.
- Highlights the impact of these issues on project performance and construction quality.
- Proposes implementing ISO quality management standards and introducing BIM technologies.
- Recommends improving digital supervision tools to enhance coordination and efficiency.

WHY IT MATTERS

Improving quality management systems leads to more efficient construction processes, higher building quality, and stronger market competitiveness. This is important because it reduces errors, delays, and costs, while ensuring compliance with standards and client expectations. As a result, companies can deliver more reliable and durable projects, enhance their reputation, and gain a competitive advantage in the construction industry.

POLICY RELEVANCE

- Promotion and implementation of ISO quality management standards to ensure consistency and continuous improvement in construction processes.
- Support for the adoption of digital technologies in construction, enhancing efficiency, accuracy, and project management capabilities.
- Encouragement of sustainable construction principles, including the use of eco-friendly materials and energy-efficient practices.

1 FUTURE PLATFORM SNAPSHOTS

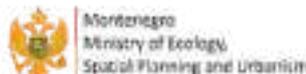
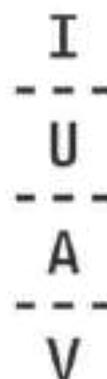
About the platform

The 1FUTURE Platform has been created as a collaborative space in the Western Balkan Region, where businesses, students, academics, and other stakeholders can join and discuss different topics related to sustainability.



<https://www.1future-platform.com/>

THE FUTURE



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