

WP3-A6. Participarea la o conferință pentru diseminarea rezultatelor WP3



Această lucrare este licențiată sub [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/)

"Finanțat de Uniunea Europeană. Punctele de vedere și opiniile exprimate aparțin, însă, exclusiv autorului (autorilor) și nu reflectă neapărat punctele de vedere și opiniile Uniunii Europene sau ale Agenției Executive Europene pentru Educație și Cultură (EACEA). Nici Uniunea Europeană și nici EACEA nu pot fi considerate răspunzătoare pentru acestea."





Cuprins

1. INTRODUCERE	3
2. REZULTATE	5
2.1. 17 th International Conference Exploration, Education and Progress in the Third Millennium: Challenges in Law and Public Administration	5
2.2. Conferința internațională “Biological Sciences and Environmental Solutions for the Achievement of Sustainable Development Goals (SDGs)”	13

1. INTRODUCERE

Obiective

Sarcina de lucru A6 din cadrul WP3 a fost implementată pentru a se asigura că rezultatele intermediare produse în cadrul Pachetului de Lucru 3 au fost diseminate eficient atât comunității academice, cât și publicului relevant. Dincolo de simpla vizibilitate, participarea la congres a fost utilizată ca un mecanism structurat pentru validarea abordării proiectului și pentru a poziționa RockChain în cadrul discuțiilor internaționale actuale privind sustenabilitatea, economia circulară și transformarea digitală a practicilor de gestionare a deșeurilor.

În acest context, conferințele internaționale au fost considerate deosebit de potrivite deoarece au reunit profiluri multidisciplinare - de la experți juridici și de politici publice, la ingineri și specialiști în mediu - reflectând astfel natura transversală a rezultatelor WP3 (inovație tehnică, încadrare normativă și implicații practice). Prin urmare, obiectivul nu a fost doar de a comunica rezultatele WP3, ci și de a încuraja dialogul informat cu părțile interesate externe și de a obține evaluări științifice care ar putea consolida claritatea, relevanța și transferabilitatea rezultatelor raportate în acest livrabil.

Activități

Pentru atingerea acestor obiective, consorțiul a desfășurat un set ținut de activități de diseminare și implicare. Într-o primă etapă, au fost identificate și selectate conferințe adecvate, pe baza alinierii tematice cu prioritățile WP3, incluzând domenii precum sustenabilitatea, gestionarea deșeurilor din construcții și demolări, căile de implementare a economiei circulare, tehnologiile inovatoare (cu accent pe blockchain), precum și perspectivele juridice asociate.

Ulterior selecției, partenerii proiectului au elaborat și transmis rezumate și lucrări pentru conferințe fundamentate pe rezultatele intermediare ale WP3, asigurându-se că contribuțiile sunt formulate într-un mod accesibil unor audiențe diverse, menținând în același timp rigoarea științifică. Participarea la sesiunile științifice s-a realizat prin prezentări formale susținute de membrii echipei de proiect, completate de activități de schimb profesional, precum networking, discuții cu cercetători și practicieni și oportunități de transfer de cunoștințe, care au sprijinit vizibilitatea proiectului și potențiale colaborări viitoare.

Așa cum este documentat în secțiunea „Rezultate” a acestui raport, aceste acțiuni au fost operaționalizate prin contribuții concrete la conferințe, abordând: (i) perspectivele juridice privind managementul deșeurilor din construcții și demolări și (ii) un cadru de gestionare circulară a deșeurilor în construcții, bazat pe tehnologia blockchain.

În concluzie, au fost parcurși următorii pași:

- identificarea conferințelor adecvate, aliniate cu tematicile WP3 (sustenabilitate, deșeuri din construcții, economie circulară, tehnologii inovatoare – blockchain – și perspective juridice);
- elaborarea rezumatelor și a lucrărilor științifice pentru conferințe;
- participarea la sesiuni științifice, prin prezentări susținute de membrii echipei de proiect;
- activități de networking și schimb de cunoștințe cu cercetători și practicieni internaționali.

Impact

Per ansamblu, sarcina de lucru A6 a contribuit la creșterea vizibilității rezultatelor WP3 în cadrul forumurilor academice și profesionale internaționale și la consolidarea credibilității acestora prin prezentarea în canale de diseminare consacrate. De asemenea, a întărit diseminarea perspectivelor juridice și tehnologice asupra managementului deșeurilor din construcții și demolări, sprijinind o înțelegere mai bună a cerințelor de reglementare în paralel cu soluțiile digitale de trasabilitate.

În mod esențial, formatul conferințelor a facilitat dialogul interdisciplinar între experți din domeniul juridic, inginerie și sustenabilitate — un rezultat direct aliniat caracterului transversal al proiectului RockChain — și a oferit oportunități de colectare a feedback-ului științific extern, util pentru rafinarea, comunicarea și adoptarea rezultatelor WP3. Prin aceste acțiuni de diseminare, au fost sprijinite obiectivele generale ale programului Erasmus+, prin promovarea schimbului structurat de cunoștințe și integrarea provocărilor legate de sustenabilitate și inovație digitală în agendele internaționale de cercetare și practică profesională.

În concluzie, au fost obținute următoarele rezultate:

- creșterea vizibilității rezultatelor WP3 în cadrul forumurilor academice internaționale;
- consolidarea diseminării perspectivelor juridice și tehnologice privind managementul deșeurilor din construcții și demolări;
- stimularea dialogului interdisciplinar între experți în drept, inginerie și sustenabilitate;
- sprijinirea obiectivelor proiectului Erasmus+ prin promovarea schimbului de cunoștințe și integrarea provocărilor de sustenabilitate în agendele internaționale de cercetare.

2. REZULTATE

2.1. 17th International Conference Exploration, Education and Progress in the Third Millennium: Challenges in Law and Public Administration

Title: *Legal Perspectives regarding the Construction and the Demolition Waste Management.*

Prezentat la 17th International Conference Exploration, Education and Progress in the Third Millennium: Challenges in Law and Public Administration (15-16 May 2025, Galați, Romania – online).

Abstract:

Protejarea mediului rămâne una dintre preocupările majore ale societății contemporane, iar oamenii sunt din ce în ce mai interesați de identificarea unor soluții concrete pentru colectarea și reciclarea diferitelor tipuri de deșeuri, inclusiv a deșeurilor provenite din construcții și demolări. Aceste preocupări se reflectă în politicile publice promovate la nivel european, care se bazează pe un principiu fundamental al Uniunii Europene, și anume principiul „poluatorul plătește”. Acest principiu urmărește asumarea responsabilității de către toți actorii care generează deșeuri, pe întregul lanț de producere și gestionare a acestora.

În acest context, identificarea și prezentarea principalelor reglementări legale aplicabile managementului deșeurilor din construcții și demolări reprezintă un demers esențial. O astfel de analiză contribuie nu doar la clarificarea cadrului normativ existent, ci și la creșterea gradului de conștientizare publică privind importanța gestionării corecte a acestor deșeuri, în vederea reducerii impactului asupra mediului și a promovării economiei circulare.

Autori:

- Catalina Georgeta Dinu

Facultatea de Drept, Universitatea Transilvania din Brașov, Romania

- Radu Muntean

Facultatea de Construcții, Universitatea Transilvania din Brașov, Romania

Programul conferinței:

https://www.fdsa.ugal.ro/images/UPDATE_DANA/Program_EEP_2025_6.pdf



"Dunarea de Jos" University of Galați, Romania,
The Faculty of Law and Administrative Sciences
Universite Paris-Est Créteil, France,
Cahul State University "Bogdan Petriceicu Hasdeu", Republic of Moldova
Galati County Council, Romania
Faculty of Law, State University of Moldova, Republic of Moldova
Aleksandër Moisiu University of Durrës, Albania
Faculty of Law University of Tirana, Albania
Academy of Legal Sciences from Romania

**17th INTERNATIONAL CONFERENCE
EXPLORATION, EDUCATION AND
PROGRESS IN THE THIRD
MILLENNIUM: CHALLENGES IN LAW
AND PUBLIC ADMINISTRATION**

Galati
15-16th MAY 2025

Figura 1: Programul conferinței 17th International Conference Exploration, Education and Progress in the Third Millennium

Calendarul livrabilelor

Titlu	Tip	Data	Status	Canal de diseminare
Legal Perspectives regarding the Construction and Demolition Waste Management	Articol prezentat la conferință	15 - 16 Mai 2025	Prezentat	EEP Conference, Galați

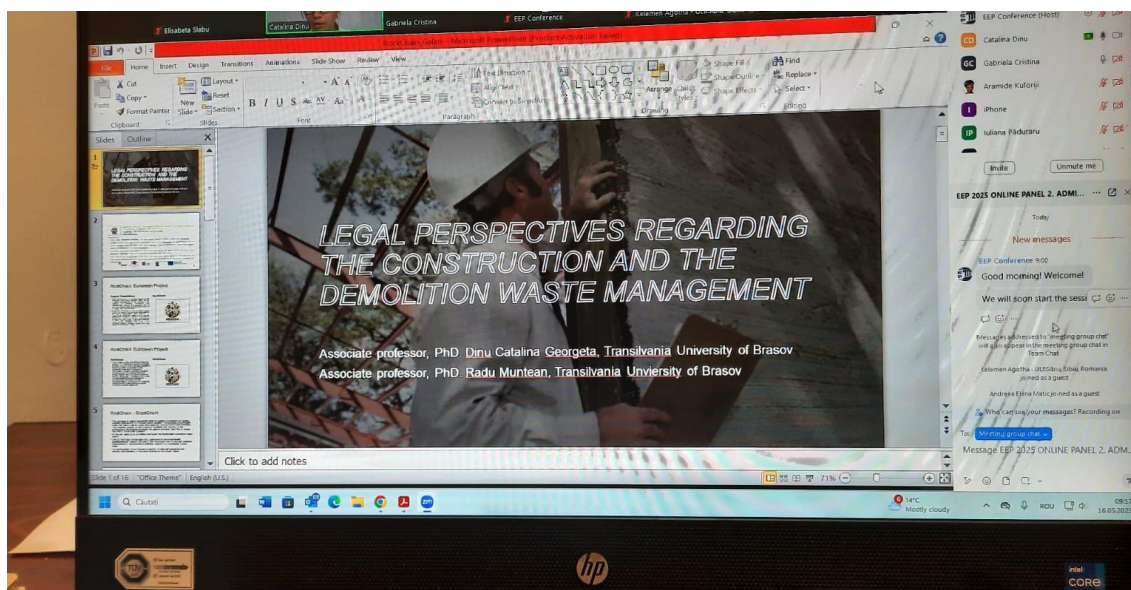


Figura 2: Imagini de la prezentarea online.

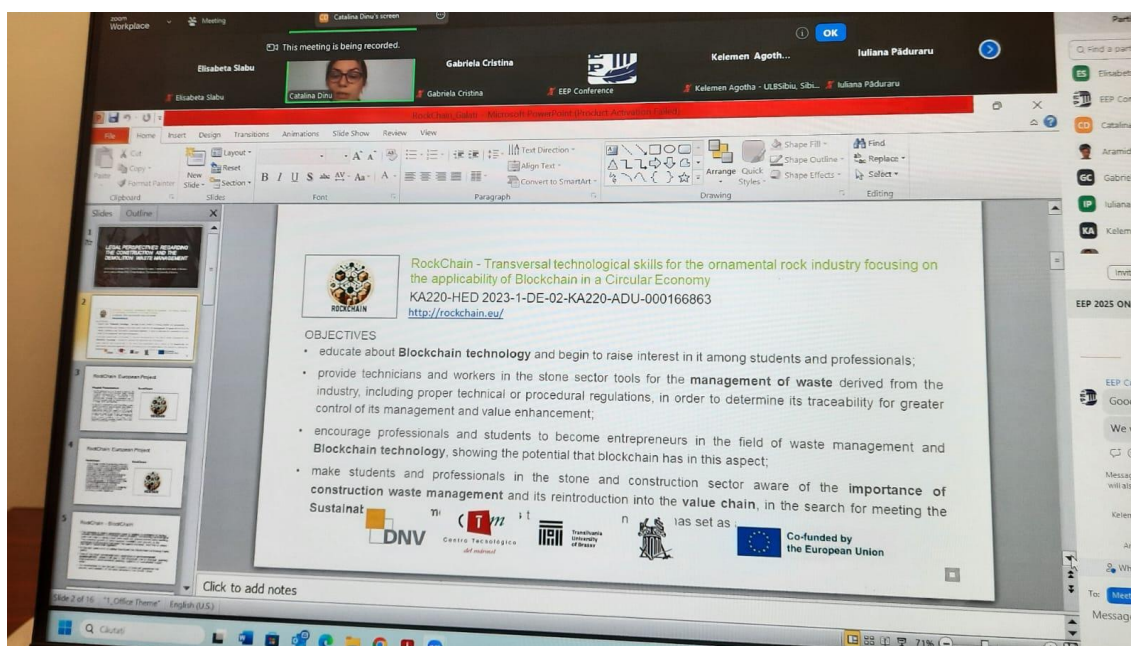


Figura 3: Imagini de la prezentarea online.



**INTERNATIONAL CONFERENCE
EXPLORATION, EDUCATION AND
PROGRESS IN THE THIRD MILLENNIUM:
CHALLENGES IN LAW AND PUBLIC
ADMINISTRATION
(EEP 2025)**



**THE CHALLENGES OF
PUBLIC ADMINISTRATION**

09:00-11:00

KEYNOTE SPEAKERS:

VASILICA NEGRUȚ, “Dunărea de Jos” University of Galati, Romania

MĂDĂLINA ELENA MIHĂILESCU, “Dunărea de Jos” University of Galati, Romania

ELISABETA SLABU, “Dunărea de Jos” University of Galati, Romania

Theoretical and Practical Aspects regarding the Duties of the Ethics Advisor

Andreea Elena Matic, “Dunărea de Jos” University of Galati, Romania

Rule of Law, Politics and Governance in Nigeria’s Fourth Republic

Cletus Egugbo, Department of Public Administration, Olabisi Onabanjo University, Ago-Iwoye, Nigeria

Rethinking Contractual Risk in Public Administration: Lessons from Microsoft ECIF Operations

Constantin Plamadeala, University of Debrecen, Debrecen, Hungary

Legal Perspectives regarding the Construction and the Demolition Waste Management

Catalina Georgeta Dinu, Transilvania University of Brasov, Romania

Radu Muntean, Transilvania University of Brasov, Romania

Citizens’ Right to Freedom of Expression vs. States’ Obligation to Combat Disinformation

Elisabeta Slabu, Dunărea de Jos University of Galati, Faculty of Law and Administrative Sciences, Legal and Administrative Research Center, Galati, Romania

Figura 4: Agenda prezentărilor.

Citarea articolului:

Dinu, C. G. and Muntean, R. (2025) “Legal Perspectives Regarding The Construction And The Demolition Waste Management”, *The Annals of “Dunărea de Jos” University of Galati. Legal Sciences. Fascicle XXVI*, 8(1), pp. 184-193.



PRIVATE LAW
Legal Perspectives Regarding the
Construction and the Demolition Waste Management

Catalina Georgeta DINU¹

Radu MUNTEAN²

Abstract: *Protecting the environment remains one of the burning desires of our times and people has begun more and more concerned with finding concrete solutions in the direction of identifying, collecting and recycling different types of waste, including construction and demolition waste. All these public policies are based upon a principle in the European Union according to which the polluter is the one who pays, wanting responsibility for all those who generate residues. Therefore, in the framework of this analysis, the identification and the presentation of the main legal regulations regarding the construction and demolition waste management are necessary steps for improving the public awareness on the matter.*

Keywords: *waste; management; construction; demolition; rock materials*

1. Argumentation

Protecting the environment remains one of the burning desires of our times and people has begun more and more concerned with finding concrete solutions in the direction of identifying, collecting and recycling different types of waste, including construction and demolition waste.

All these public policies are based upon a principle in the European Union according to which the polluter is the one who pays, wanting responsibility for all those who generate residues.

¹ Associate Professor, PhD, Transylvania University of Brasov, Romania, Address: Bulevardul Eroilor 29, Braşov 500036, Romania, Corresponding author: catalina.matei@unitbv.ro,

² Associate Professor, PhD, Transylvania University of Brasov, Romania, Address: Bulevardul Eroilor 29, Braşov 500036, Romania, E-mail: radu.m@unitbv.ro.



Copyright: © 2025 by the authors.
Open access publication under the terms and conditions of the
Creative Commons Attribution (CC BY) license
(<https://creativecommons.org/licenses/by/4.0/>)

Construction and demolition waste is among these types of debris left over from various construction site activities and many others, emerging the need to collect and recycle them in order to be reused and to successfully replace natural resources. Local public authorities, sanitation operators and economic operators must know the legislation and how to manage construction and demolition waste, so that nature does not suffer.

Construction and demolition waste results from the construction of buildings, roads, from the total or partial demolition of some buildings, but also from the activities of renovation, rehabilitation, repair or consolidation of various civil or industrial constructions or dredging and unclogging activities. The composition of these wastes is heterogeneous (material scraps, chemical products, auxiliary materials). In recent times, there is a growing emphasis on recycling and reuse, because they save the natural resources.

In this context, the concept of circular economy and waste management appears as an opportunity to change the current production and consumption model.

This is where Blockchain technology finds its utility. It initially appeared within electronic payment systems, but currently, the advantages of applying the technology can also be found in other sectors, such as insurance, healthcare, transport and logistics, industry (waste management, product quality, process verification, etc.) and many others, as it can help improve company management and find new business models.

For example, The RockChain is a co-funded project by the European Union that proposes basic training in waste management in the building stone industry, for students, technicians and professionals, through the combined use of new technologies such as Blockchain, Internet of Things (IoT) and Big Data.

In the EU, construction and demolition waste (CDW) represents approximately one third of all waste generated. The situation is exacerbated when this waste is not properly treated and managed, making it impossible to re-enter the value chain. Proper management of CDW and recycled materials, including proper waste handling, can bring major economic benefits, increase quality of life and reduce environmental impact.

2. Types of Construction and Demolition Waste according to Legislation

In order to manage waste as well as possible, it is mandatory to know closely all types of residues that come from constructions and demolitions. Thus, the following types can be highlighted:

improvements since its implementation, but it must be constantly modernized to adapt it to the circular economy and the digital era.

The increase in waste generation rates is leading to problems in finding suitable destinations to manage waste properly. Introducing technological tools that help to obtain more data does not ensure correct data handling. The massive growth of data requires credibility and security in the exchange of information between the agents involved. And this is where the role of Blockchain appears.

In the last years a lot of utilities has found the Blockchain technology being useful.

One of the most remarkable is its application in environmental sustainability, where it will play a very important role in strategic planning improvements, environmental planning, logistics or sustainable supply chain.

Its involvement in the Circular Economy of cities will guarantee the security and reliability of the data obtained in the Smart Cities.

4. Objects of the European project "RockChain - Transversal technological skills for the ornamental rock industry focusing on the applicability of Blockchain in a Circular Economy"

The project educates about Blockchain technology and begin to raise interest in it among students and professionals.

It provides technicians and workers in the stone sector tools for the management of waste derived from the industry, including proper technical or procedural regulations, in order to determine its traceability for greater control of its management and value enhancement;

It encourages professionals and students to become entrepreneurs in the field of waste management and Blockchain technology, showing the potential that blockchain has in this aspect;

The project makes students and professionals in the stone and construction sector aware of the importance of construction waste management and its reintroduction into the value chain, in the search for meeting the Sustainable Development objectives that the European Union has set as a goal.

5. Conclusion

Builders, individuals or legal entities, must be guided to know and apply the legal regulations regarding the management of waste from constructions and demolitions. We note that Romania has implemented the European legislation on the matter, but it must improve its application by developing procedures for builders, in order to indicate the steps they must follow. Identifying the transposition of European legislation in the national legislation of the other member states that are participating to the project needs to be analyzed.

6. Acknowledgement

RockChain - Transversal technological skills for the ornamental rock industry focusing on the applicability of Blockchain in a Circular Economy, KA220-HED 2023-1-DE-02-KA220-ADU-000166863, <http://rockchain.eu/>

7. References

Botezatu, E. (2016). The industrial NORM residues - radioactive waste or building material? *Proceed of the 8th EANNORM WORKSHOP. Three years into the new EU BSS: How far have we come with the transposition and what is the impact on NORM industrial activities?* Stockholm, Sweden, 5-7 December 2016.

Meita, V. (n.d.). *Planning, Architecture, Seismic, Construction and Energy-Related Criteria for Sustainable Spatial Development in the Danube Delta Biosphere Reserve Area*, https://www.academia.edu/105763507/Planning_Architecture_Seismic_Construction_and_Energy_Related_Criteria_for_Sustainable_Spatial_Development_in_the_Danube_Delta_Biosphere_Reserve_Area

Swelling and shrinking soils [Internet]. British Geological Survey. Available from: <https://www.bgs.ac.uk/geology-projects/shallow-geohazards/clay-shrink-swell/>

https://environment.ec.europa.eu/topics/waste-and-recycling/construction-and-demolition-waste_en

2.2. Conferința internațională “Biological Sciences and Environmental Solutions for the Achievement of Sustainable Development Goals (SDGs)”

Titlu: *RockChain: A Technological Framework for Blockchain-Driven Circular Waste Management in Construction.*

Lucrare trimisă la conferința internațională “*Biological Sciences and Environmental Solutions for the Achievement of Sustainable Development Goals (SDGs)*” – Yerevan State University.

Abstract:

Industria construcțiilor este unul dintre principalii contribuitori la consumul global de resurse și la generarea de deșeuri, generând provocări semnificative de mediu. Practicile tradiționale de gestionare a deșeurilor (Waste Management – WM) sunt adesea insuficiente în asigurarea transparenței, trasabilității și eficienței, elemente esențiale pentru avansarea sustenabilității. Această lucrare prezintă „RockChain”, un cadru tehnologic care valorifică tehnologia blockchain pentru a susține gestionarea circulară a deșeurilor în sectorul construcțiilor. Prin integrarea blockchain-ului cu principiile economiei circulare (Circular Economy – CE), cadrul propus abordează bariere critice precum fragmentarea datelor, lipsa responsabilității și cooperarea limitată între industrii. Studiul analizează stadiul actual al gestionării deșeurilor din construcții, explorează potențialul soluțiilor bazate pe blockchain și evidențiază sinergia dintre blockchain și alte inovații digitale, precum Building Information Modeling – BIM și Internetul Lucrurilor (Internet of Things – IoT). Rezultatele arată că blockchain-ul poate îmbunătăți transparența, poate automatiza urmărirea deșeurilor și poate facilita schimbul securizat de informații, sprijinind astfel tranziția către un mediu construit circular. Lucrarea concluzionează că adoptarea sistemelor de gestionare circulară a deșeurilor bazate pe blockchain poate reduce semnificativ impactul asupra mediului, poate promova eficiența utilizării resurselor și poate încuraja practici sustenabile în sectorul construcțiilor.

Autori:

- Moutaman M. Abbas

Facultatea de Construcții, Universitatea Transilvania din Brașov, Romania

- Radu Muntean

Facultatea de Construcții, Universitatea Transilvania din Brașov, Romania

Pagina conferinței:

<https://www.ysu.am/en/conference/869>



The first "Biological Sciences and Environmental Solutions for the Achievement of Sustainable Development Goals (SDGs)" conference serves as a global platform to address the urgent need for sustainable solutions to the world's most pressing environmental and developmental challenges. The "BSES-SDGs" International Conference is dedicated to the 90th anniversary of the Faculty of Biology, as well as the 10th anniversary of the Research Institute of Biology at Yerevan State University.

Established in 1935, the Faculty of Biology traces its origins to the founding of the university. It serves as a leading scientific and educational center in Armenia, training highly qualified specialists in various fields of biology. Alumni of the faculty are working in leading educational and research institutions all over the world. Biological and environmental sciences play a transformative role in tackling critical issues such as climate change, biodiversity loss, food insecurity, water scarcity, and public health crises, all of which are central to the United Nations Sustainable Development Goals (SDGs). This conference will bring together leading scientists, educators, policymakers, and practitioners from diverse disciplines to explore the intersection of biological processes, environmental management, and technological innovation. Through insightful discussions, groundbreaking research presentations, and collaborative sessions with a focus on practical applications and policy implications that align with the achievement of specific SDGs.

Key themes of BSES-SDGs conference include all aspects of biological research: Cell Biology, Genomics, Proteomics, Metabolomics, Systems Biology, Plant and Fungi Secondary Metabolites, Immunology, Neuroscience, Structural Biology, Animal and Plant Physiology, Bioengineering, Biotechnology, Evolutionary Biology, Bioethics, Plant Science, Microbiology, Zoology, Mycology, Molecular Biology, Biomedicine, Developmental Biology, Biostatistics, Biochemistry, Biophysics and Bioinformatics. The key themes related to environmental solutions are: Climate Science, Environmental Policy and Governance, Ecological Restoration, Ecological & Conservation Biology, Sustainable Land Management, Environmental Economics, Renewable Energy and Sustainability, Geospatial Science and Remote Sensing, Hydrology and Watershed Management, Environmental Toxicology, Energy Systems and Sustainability, Environmental Law, Waste Management and Resource Recovery, Eco-innovation and Green Technologies, Environmental Impact Assessment (EIA), Carbon Management and Climate Finance, Air and Water Quality Management, Sustainable Fisheries and Marine Conservation, Agricultural and Crop Science, Environmental Health Science, Ecotourism and Sustainable Development for achieving the Sustainable Development Goals (SDGs).

The conference delves into interdisciplinary approaches to sustainable development, fostering global collaboration, and bridging the gap between research and practice. By inspiring actionable strategies and driving impactful change, this event seeks to harness the transformative power of the biological and environmental sciences to address pressing global challenges and achieve SDGs.

High-quality short papers, following rigorous peer review, will be published in esteemed outlets, including books by *KGI Global (USA)*, *De Gruyter Germany*, *AAP-CRC Taylor and Francis (USA)*, and *Wiley-Scrivener (USA)*. Selected papers will also be considered for publication in special issues of prestigious journals, including *Frontiers in Plant Science* (Impact Factor: 4.8) (Q1) and the *Egyptian Journal of Soil Science* (Impact Factor: 3.4) (Q3). All publications will be indexed in world-renowned databases, including *Scopus*, *Web of Science*, *Google Scholar*, and *ORCID*.

Join us in the vibrant city of Yerevan from September 24-26, 2025, as we celebrate the remarkable 90-year legacy of the Faculty of Biology and the 10th anniversary of the Research Institute of Biology at Yerevan State University, Armenia—a legacy built on excellence, innovation, and impact. Together, let us explore the transformative power of biological and environmental sciences in shaping a sustainable future for our planet and generations to come.

About the Conference

Conference Organizing Committee

Conference Scientific Committee

Keynote speakers

Conference Agenda

Conference Topics

Submission and Presentation Types

Registration & Fees

Important Deadlines

Venue



Figura 9: Pagina de internet a conferinței internaționale.

Calendarul livrabilelor

Titlu	Tip	Data	Status	Canal de diseminare	de
RockChain: Blockchain-Driven Waste Management in Construction	Circular Articol prezentat la conferință	24 - 26 Septembrie 2025	Prezentat	YSU Conference on SDGs	

Parallel Session 3

Topic: Environmental Solutions for the Achievement of Sustainable Development Goals

Moderator: Syuzanna Esayan

Venue: Faculty of Oriental Studies, 2nd floor, Ferdows hall, Yerevan State University

13:45-14:00	Presentation 6: Green synthesis of Silver Nanoparticles with Antimicrobial Activity Using Biomass of Microalgae Speaker: Lilit Gabrielyan, Yerevan State University, Armenia
14:00-14:05	Flash talk 7: Influence of Intercropping and Arbuscular Mycorrhizal Fungi (AMF) on Growth and Yield of Cauliflower Speaker: Nikhil Malav, ITM University Gwalior, India
14:05-14:10	Flash talk 8: RockChain: A Technological Framework for Blockchain-Driven Circular Waste Management in Construction Sector Speaker: Moutaman Mohammed Ahmed Abbas, Transilvania University of Braşov, Romania
	Flash talk 9: Assessing Soil Quality Using Minimum Data Set Under Prevalent Cropping Systems in Low Hills Subtropical Zone of

Figura 10: Agenda conferinței.



Figura 11: Imagini din timpul prezentării.

Citarea articolului:

RockChain: A Technological Framework for Blockchain-Driven Circular Waste Management in Construction Sector. (2025). *Journal of Innovative Solutions for Eco-Environmental Sustainability*, 123.

Abstract Accepted – Early Bird Registration Link for BSES–SDGs 2025 Conference



From Bio Env
to mohammed.abbas@student.unitbv.ro

vin. 13.06.2025 11:51

📧 You forwarded this message on miercuri, 25 iunie 2025 11:21:00.

Dear Participant,

We are delighted to confirm that your abstract has been officially accepted for presentation at the International Conference on **"Biological Sciences and Environmental Solutions for Achieving the Sustainable Development Goals (SDGs)"**, to be held on **September 24–26, 2025**, at **Yerevan State University, Armenia**.

Thank you for confirming your mode of participation ([online/in-person]).

Figura 12: Acceptarea pentru publicare.

DOI: 10.46991/JISEES.2025.SI1.123

RockChain: A Technological Framework for Blockchain-Driven Circular Waste Management in Construction Sector

Moutaman M. Abbas, Radu Muntean*

Faculty of Civil Engineering, Transilvania University of Braşov, Braşov, Romania

ABSTRACT

The construction industry is a major contributor to global resource consumption and waste generation, posing significant environmental challenges. Traditional waste management (WM) practices often fall short in ensuring transparency, traceability, and efficiency, which are essential for advancing sustainability. This paper introduces "RockChain," a technological framework that leverages blockchain technology to drive circular waste management in construction. By integrating blockchain with circular economy (CE) principles, the proposed framework addresses critical barriers such as data fragmentation, lack of accountability, and limited cross-industry cooperation. The study reviews the current state of construction waste management, explores the potential of blockchain-enabled solutions, and highlights the synergy between blockchain and digital innovations like Building Information Modeling (BIM) and the Internet of Things (IoT). The results demonstrate that blockchain can enhance transparency, automate waste tracking, and facilitate secure information sharing, thereby supporting the transition to a circular built environment. The paper concludes that adopting blockchain-driven circular waste management systems can significantly reduce environmental impacts, promote resource efficiency, and foster sustainable practices in the construction sector.

Keywords: blockchain, circular economy, waste management and recycling, construction waste, sustainability

References:

1. RockChain. Transversal technological skills for the ornamental rock industry focusing on the applicability of Blockchain in a Circular Economy. <https://rockchain.eu/>
2. Transilvania University of Braşov, Faculty of Civil Engineering. RockChain – Transversal technological skills for the ornamental rock industry focusing on the applicability of Blockchain in a Circular Economy. Retrieved May 26, 2025, from <https://constructii.unitbv.ro/en/research-outputs/rockchain-transversal-technological-skills-for-the-ornamental-rock-industryfocusing-on-the-applicability-of-blockchain-in-a-circular-economy.html>

*Corresponding Author:

Radu Muntean, Faculty of Civil Engineering, Transilvania University of Braşov, Strada Turnului 5, Braşov 500152, Romania.

Email: radu.m@unitbv.ro

Figura 13: Publicația. Sursa: https://journals.vsu.am/index.php/jisees/article/view/SI_1_2025_p123