



ICRES
International Conference on
Resource Efficiency Towards Sustainability



Because Tomorrow Matters

The 02nd International Conference on

Resource Efficiency Towards Sustainability

“Resource Efficiency for a Resilient Future”



PROGRAM BOOK

2nd International Conference on Resource Efficiency towards Sustainability (ICRES 2026)

Vision

To promote and accelerate the global transition towards a circular economy for sustainable and responsible resource management.

Mission

To provide a dynamic platform for knowledge exchange, collaboration, and innovation that advances resource circularity and sustainability across industries.

14th March 2026, Colombo, Sri Lanka

PREFACE

It is with great pleasure that we present the program book for the 2nd International Conference on Resource Efficiency Towards Sustainability (ICRES) 2026, taking place on 14th March 2026. Building on the success and impactful discussions of the inaugural ICRES, this year's conference continues our commitment to advancing global conversations on resource efficiency, sustainable development, and the circular economy. As an extension of our extensive experience in organizing high-profile academic conferences, including the International Conference on Sustainable Built Environment (ICSBE), ICRES 2026 provides a platform for cutting-edge research and innovation in sustainable resource management across various disciplines. This program book reflects a collection of high-quality research papers and case studies that will be presented in parallel sessions, fostering meaningful interdisciplinary dialogues and collaborations. We extend our deepest gratitude to the distinguished keynote speakers for sharing their valuable expertise, helping us address the urgent sustainability challenges of our time. A heartfelt thanks also goes to the authors for their exceptional contributions and to the panel of academic and professional reviewers who have rigorously evaluated the manuscripts, ensuring their academic rigor. We are especially thankful to INSEE Ecocycle for their generous support and for hosting this conference, which has been instrumental in making ICRES 2026 a reality. We hope that this program book will serve as an invaluable resource for researchers, practitioners, and policymakers engaged in sustainable resource management, and we eagerly anticipate the enriching discussions and collaborations that will emerge, guiding us toward innovative solutions for a more sustainable future.

Editors

Prof. Ranjith Dissanayake
Dr. Pradeep Gajanayake
Eng. Sujith Gunawardana

The 2nd International Conference on Resource Efficiency towards Sustainability
14th March 2026 | Online

Date: 14th March 2026 | Time: 09:00 – 10:15

Main Session | (Online)

Opening Ceremony

Join Zoom Meeting	https://us06web.zoom.us/j/81079139421?pwd=CBJ0TDnUDkMXS0RkCdKKVxYzDHGPA7.1	
Meeting ID:	810 7913 9421	Passcode: 542605
Time	Item/Description	
09:00 – 09:10	Opening of the Conference	
09:10 – 09:20	Speech by Conference Co- Chair Prof. Ranjith Dissanayake, Conference Co- Chair – ICRES, Founder- gapHQ	
09:20 – 09:35	Message from INSEE Ecocycle Eng. Sujith Gunawardhana, Director, INSEE Ecocycle Lanka Pvt Ltd	
09:35 – 10:00	KEYNOTE SPEECH The Data-Driven Circular Economy: Leveraging Big Data and AI for Resource Efficiency and Sustainable Infrastructure Prof. Abdelhak Senadjki, Deputy Dean, Universiti Tunku Abdul Rahman (UTAR), Malaysia	
10:00 – 10:10	Vote of Thanks Dr. Pradeep Gajanayake, Conference Manager at gapHQ	
Session Coordinators	Ms. Sankalya Lunuwila +94 77 738 8441	Mr. Ravishka Iroshana +94 77 007 2875

Date: 14th March 2026 | Time: 10:30 – 12:30

Sustaina | Session 01 | (Online)

Circular Economy in Manufacturing and Industrial Systems

Join Zoom Meeting

<https://us06web.zoom.us/j/81079139421?pwd=CBI0TDnUDkMXS0RkCdKKVxYzDHGPA7.1>

Meeting ID:

810 7913 9421

Passcode:

542605

Session Chairs	Dr. (Eng.) Pasan Chinthana Bandara, University of Sri Jayawardenepura, Sri Lanka	Dr. Pabasari Koliyabandara, University of Sri Jayawardenepura, Sri Lanka	Dr. Renuka Ariyawansa, SLTC
Time	Item/ Paper ID	Description	
10:30 – 10:45	ICRES26_022	OPTIMIZING EFFICIENCY IN DAIRY PROCESSING: A CASE OF A SET YOGHURT MANUFACTURING SECTION <i>T.N.E. Liyanapathirana, D.A.M. De Silva, A.S. Gunathunga</i>	
10:45 – 11:00	ICRES26_043	PH-DEPENDENT EMULSIFICATION ABILITY OF PROTEINS IN SKIM COCONUT MILK AND SKIM COW MILK – A COMPARATIVE STUDY <i>P. Janani, R.M.M. Minhaj, C.J. Gamlath</i>	
11:00 – 11:15	ICRES26_053	ANALYSIS OF THE ANTIMICROBIAL POTENTIAL OF BANANA PSEUDOSTEM FIBER AS A LOW-COST BIOMEDICAL APPLICATION: A CIRCULAR ECONOMY APPROACH IN SRI LANKA <i>D.R.A. Somawickrama, N.M.K.C. Pramerathn, N.D.A.D. Wijegunawardana, R.M.S.I. Rajapakse</i>	
11:15 – 11:30	ICRES26_059	POLYSACCHARIDE-BASED BIODEGRADABLE FILMS FOR RESOURCE-EFFICIENT PACKAGING: STRUCTURAL ENGINEERING, PERFORMANCE OPTIMIZATION AND SUSTAINABILITY PERSPECTIVES <i>A.S.S.Jahan, A.M.R. Ahamed</i>	
11:30 – 11:45	ICRES26_060	VALORIZATION OF BIOMASS ASH FROM INDUSTRIAL WASTE AS A CIRCULAR FERTILIZER RESOURCE FOR SUSTAINABLE AGRICULTURE <i>H.P.K.D. Dilshani, K. H. P. Madusanka, H.P.A.M. Siriwardana, T.M.D.P. Thennakoon</i>	
11:45 – 12:00	ICRES26_069	MECHANOCHEMISTRY AS A SUSTAINABLE CHEMICAL MANUFACTURING METHOD <i>I.R. Fernando, N.M. Adassooriya</i>	

12:00 – 12:15	ICRES26_072	HYBRID AI FORECASTING FRAMEWORK FOR SUSTAINABLE PRODUCTION AND RESOURCE EFFICIENCY IN APPAREL EXPORTS USING SOCIAL MEDIA SENTIMENT <i>Y.P.S.S. Pathiraja, W.T.S. Somaweera, R.M.T. Sandaruwan, B.T.G.S. Kumara</i>	
12:15 – 12:30	ICRES26_076	PATH FROM AWARENESS TO BEHAVIOR IN THE ORGANIC FOOD MARKET: A NEW MODEL FOR SUSTAINABILITY IN THE CONTEXT OF CIRCULAR ECONOMY <i>U.G.C. Lakchan, G.C. Samaraweera, T.S.L.W. Gunawardana, P.J.S. Fernando</i>	
Session Coordinators	Ms. Wasana Chamurdi +94 77 102 3781	Ms. Sathurjika +94 70 223 8400	

DRAFT

Date: 14th March 2026 | Time: 10:30 – 12:30

Circulara | Session 01 | (Online)

Sustainable Resource Management and Urban Development- I

Join Zoom Meeting <https://us06web.zoom.us/j/81079139421?pwd=CBJ0TDnUDkMXS0RkCdKKVxYzDHGPA7.1>

Meeting ID: 810 7913 9421 Passcode: 542605

Session Chairs	Dr. I.S.K. Wijayawardane Open University of Sri Lanka	Dr. K.H.P. Madusanka University of Sri Jayawardenepura Sri Lanka	Dr. Lahiru Lindamulla Sri Lanka Institute of Information Technology
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Time	Item/ Paper ID	Description
10:30 – 10:45	ICRES26_004	WATER QUALITY ASSESSMENT OF ROSNEITH LAKE IN THE DUNUMADALAWA CATCHMENT RESERVE, KANDY, SRI LANKA <i>H.D. Jayathilake, U.A.L. Udugama</i>
10:45 – 11:00	ICRES26_015	TECHNICAL ASSESSMENT OF WASTE-DERIVED PHASE CHANGE MATERIALS (PCMS) FOR COLD STORAGE APPLICATIONS IN RURAL AREA <i>N.M.C. Jananjana, S.M. Gamage, A.M. Wasantha</i>
11:00 – 11:15	ICRES26_030	INVESTIGATION OF INCORPORATION OF RECYCLED ASPHALT AGGREGATES IN RIGID PAVEMENTS IN SRI LANKA <i>U.L.M. Akeel, H.W.K. Sandeep, G.G.T. Madhushan, A.A.S.U. Gunarathna</i>
11:15 – 11:30	ICRES26_055	INCORPORATING HIGH-DENSITY POLYETHYLENE AND QUARRY DUST IN CONCRETE: A SUSTAINABLE APPROACH <i>P.D. Dharmaratne, R. Ravindu, B.R.A.L Dematapitiya, S.T.D. Gallage, S.N. Malkanthi</i>
11:30 – 11:45	ICRES26_061	A GLOBAL REVIEW ON BIO-BASED SUPPLEMENTARY CEMENTITIOUS MATERIALS (SCMS) FOR SUSTAINABLE AND RESOURCE EFFICIENT CONCRETE <i>T.T.N. De Silva, L.D.I.P. Seneviratne</i>
11:45 – 12:00	ICRES26_066	CONCRETE MATERIAL MODEL FOR PULVERIZED CONCRETE PARTICULATES <i>P.M.B.P.D. Dayarathne</i>
Session Coordinators	Ms. Sasini Goonasekara +94 71 761 0747	Mr. Hasala +94 70 249 3168

Date: 14th March 2026 | Time: 10:30 – 12:30

Resourca | Session 01 | (Online)

Sustainable Resource Management and Urban Development- II

Join Zoom Meeting <https://us06web.zoom.us/j/81079139421?pwd=CBJ0TDnUDkMXS0RkCdKKVxYzDHGPA7.1>

Meeting ID: 810 7913 9421 Passcode: 542605

Session Chairs	Professor S.S.R.M.D.H.R. Wijesekara Sabaragamuwa University of Sri Lanka	Dr. K.P.P. Udayagee University of Sri Jayawardenepura Sri Lanka	Mr. Janaka Wijesekara Process Management Consultants (Pvt) Ltd Sri Lanka
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Time	Item/ Paper ID	Description
10:30 – 10:45	ICRES26_005	LESSONS FROM THE PAST FOR SUSTAINABLE RESOURCE MANAGEMENT AND URBAN DEVELOPMENT: A STUDY ON THE DUTCH CANAL NETWORK IN SRI LANKA <i>K.G.H. Chathumina, H.M.R.B.U. Heenkenda</i>
10:45 – 11:00	ICRES26_008	DEVELOPMENT OF A ROADSIDE DRAINAGE CLEANER <i>K. Sanjeevan, S. Sharangan, R. Akshayan, M.M.I.D. Manthilake, H.K.G. Punchihewa</i>
11:00 – 11:15	ICRES26_017	RESOURCE RECOVERY POTENTIAL FROM THE GOHAGODA DUMPSITE <i>Y.C.W. Gunasekara, H.K.D. Hasanka, C.S.Kalpage, M. Danthurebandara</i>
11:15 – 11:30	ICRES26_040	REMOTE SENSING-BASED ASSESSMENT OF URBAN GREEN-BLUE INFRASTRUCTURE INTERACTION <i>G.E. Kavirathna</i>
11:30 – 11:45	ICRES26_078	INVESTIGATING HOUSEHOLD E-WASTE DISPOSAL BEHAVIORS AND BARRIERS TO CIRCULAR ECONOMY INTEGRATION IN WESTERN PROVINCE, SRI LANKA <i>D.W.C. Dissanayaka, S.C. Nissanka, A. De Silva, P. Gajanayake, D.W.K. Hemachandra, P.B.R. Dissanayake, C.S. Bandara, G.R.S.D. Gamage, G.Y. Jayasinghe</i>
11:45 – 12:00	ICRES26_044	VEGETATION DYNAMICS AS AN INDICATOR OF RESOURCE EFFICIENCY AND SUSTAINABLE URBAN PLANNING: A COMPARATIVE GIS-BASED STUDY OF SELECTED URBAN AND PERI-URBAN AREAS IN AMPARA DISTRICT, SRI LANKA <i>M.A.D.N. Randeepanee, R.P.I.N.Imasha, L.A.W.C. Liyanage, K.A.S.H. Wijayasenarathne, P.B.M.K.D.C.S. Basnayaka, R.M.A. Dilini</i>
12:00 – 12:15	ICRES26_052	THE WOOD WIDE WEB AS A BLUEPRINT FOR CARBON NEUTRAL CITIES: A BIOMIMETIC MODEL FOR ADAPTIVE ENERGY SHARING <i>R.V.A.D Rahubadda, I.H Wijesundara, U. Kulatunga</i>
Session Coordinators	Ms. Arani Dematapitiya +94 76 497 5256	Ms. Sonalie +94 71 015 2251

Date: 14th March 2026 | Time: 14:00 – 16:00

Sustaina | Session 02 | (Online)

Resource Efficiency in Energy, Water, and Supply Chains

Join Zoom Meeting <https://us06web.zoom.us/j/81079139421?pwd=CBJ0TDnUDkMXS0RkCdKKVxYzDHGPA7.1>

Meeting ID: 810 7913 9421 Passcode: 542605

Session Chairs	Dr. Nishanka Jayasiri Postdoctoral Research Scientist Faculty of Engineering University of Peradeniya	Dr. Shavindree Nissanka Sri Lanka Institute of Information Technology	Dr. Ravindu Lokuliyana Open University of Sri Lanka
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Time

Item/ Paper ID

Description

14:00 – 14:15

ICRES26_003

OPTIMISATION OF TURBIDITY REMOVAL EFFICIENCY IN DUNUMADALAWA WATER TREATMENT PLANT UNDER VARIABLE RAW WATER QUALITY CONDITIONS

H.D. Jayathilake, U.A.L. Udugama

14:15 – 14:30

ICRES26_007

COMPARATIVE EVALUATION OF NATURAL MINERAL PHOTOCATALYSTS FOR SUSTAINABLE WASTEWATER TREATMENT USING MCDM APPROACH

S.M. Gamage, A.M. Wasantha

14:30 – 14:45

ICRES26_023

A RESOURCE-EFFICIENT OPTIMIZATION FRAMEWORK FOR BATTERY ENERGY STORAGE SIZING IN GRID-CONNECTED SOLAR PV SYSTEMS

R.M.T. Lakmali, R.M.T.C.B. Ekanayaka, A.R.P.C.C.J. Amarasinghe, A.C. Vidanapathirana

14:45 – 15:00

ICRES26_049

RESOURCE-EFFICIENT ENERGY MANAGEMENT IN INDUSTRIAL TEA WITHERING USING PLC-BASED FUZZY LOGIC CONTROL

I.B.U. Ninnada, G.M.S. Perera, W.D.I.G. Dasanayake, K. Subasinghage

15:00 – 15:15

ICRES26_057

AN EXPLAINABLE AI-BASED DECISION SUPPORT FRAMEWORK FOR DETECTING AND OPTIMIZING ENERGY RESOURCE INEFFICIENCIES IN COMMERCIAL BUILDINGS

M. Shanuga, C. Roshan, A.S.S.Amath, J.D.T.Erandi

15:15 – 15:30

ICRES26_077

EVALUATING THE INFLUENCE OF HYDRAULIC LOADING RATE ON BIODEGRADABILITY (BOD/COD) AND TREATMENT EFFICIENCY IN A LAB-SCALE CONSTRUCTED WETLAND INCORPORATING CONSTRUCTION RESIDUES

S. Tharshika, G.M.P.R. Weerakoon, R.M.L.D. Rathnayake

Session Coordinators
Ms. Wasana Chamurdi
+94 77 102 3781

Ms. Sathurjika
+94 70 223 8400

Date: 14th March 2026 Time: 14:00 – 16:00		
Circulara Session 02 (Online)		
Sustainable Resource Management and Urban Development- III		
Join Zoom Meeting	https://us06web.zoom.us/j/81079139421?pwd=CBj0TDnUDkMXS0RkCdKKVxYzDHGPA7.1	
Meeting ID:	810 7913 9421	Passcode: 542605
Session Chairs	Dr. (Eng). N. Arosha Hemali University of Sri Jayawardenepura Sri Lanka	Dr. Nilanthi Fernando General Sir John Kotelawala Defence University Sri Lanka
Time	Item/ Paper ID	Description
14:00 – 14:15	ICRES26_012	THE IMPACT OF CONSUMER PREFERENCES ON THE SUSTAINABLE DEVELOPMENT OF SRI LANKA'S HERBAL MEDICINE AGRO INDUSTRY: LOCALLY SOURCED VS. IMPORTED PRODUCTS <i>H.T.D.S. Karunaratna, G.P. Maddumage</i>
14:15 – 14:30	ICRES26_013	SOCIO-ECONOMIC IMPLICATIONS OF FAST-FOOD CONSUMPTION IN URBAN SRI LANKAN CONTEXT: EVIDENCE FROM WATTALA-MABOLA URBAN COUNCIL AREA <i>M.A.F. Mubashshira, K. Rewathy</i>
14:30 – 14:45	ICRES26_021	CIRCULAR ECONOMY PRINCIPLES FOR ADAPTIVE REUSE OF COLONIAL BUILDINGS OF WORLD HERITAGE SITE: CASE STUDIES OF GALLE FORT <i>K.B. Seenapatabendige, R. U. Halwatura, M. Kariyakarawana</i>
14:45 – 15:00	ICRES26_029	CONSUMER PREFERENCE DYNAMICS AND MARKET GROWTH POTENTIAL OF REGIONALLY BRANDED AGRICULTURAL PRODUCTS IN SRI LANKA: IMPLICATIONS FOR SUSTAINABLE REGIONAL DEVELOPMENT <i>G.P. Maddumage, N.W.V.U. Shashikala, S.J.I.S. Wickramasinghe</i>
15:00 – 15:15	ICRES26_042	BI METALLIC METAL ORGANIC FRAMEWORKS FOR ENHANCED ADSORPTIVE REMOVAL OF METHYL ORANGE DYE <i>B.J. Liyanage, N.M. Adassooriya</i>
15:15 – 15:30	ICRES26_067	APPLICATION OF BIO-ENGINEERED MEDICINAL PLANT GREEN WALLS FOR INDOOR AIR QUALITY MANAGEMENT IN SRI LANKA <i>D.S.B. Ratnayake</i>
Session Coordinators	Ms. Sasini Goonasekara +94 71 761 0747	Mr. Hasala +94 70 249 3168

Date: 14th March 2026 Time: 14:00 – 16:00			
Resourca Session 02 (Online)			
Circular Economy for Industry and Climate Resilience			
Join Zoom Meeting	https://us06web.zoom.us/j/81079139421?pwd=CBJ0TDnUDkMXS0RkCdKKVxYzDHGPA7.1		
Meeting ID:	810 7913 9421	Passcode:	542605
Session Chairs	Dr. Thilanka Ariyawansa University of Colombo Sri Lanka	Dr. Shanka M. Henkanatte Gedara CINEC Campus Sri Lanka	Dr. Gouri De Silva University of Peradeniya Sri Lanka
Time	Item/ Paper ID	Description	
14:00 – 14:15	ICRES26_031	COST ESTIMATION BARRIERS IN THE ADOPTION OF CIRCULAR ECONOMY PRACTICES IN THE SRI LANKAN CONSTRUCTION INDUSTRY <i>W.G. Pabodha, K.S.P.K. Bandara</i>	
14:15 – 14:30	ICRES26_035	GIS BASED CIRCULAR ECONOMY PLANNING FOR RESOURCE EFFICIENT AND CLIMATE RESILIENT TOURISM LANDSCAPES: THE KNUCKLES MOUNTAIN RANGE <i>R. Nimanshika, T. Kothalawala, G. Sripathinathan, N. Jeyathunga</i>	
14:30 – 14:15	ICRES26_036	COMPARATIVE CHEMICAL AND MORPHOLOGICAL ANALYSIS OF PASSIVE SAMPLED AIRBORNE PARTICULATE MATTER USING FTIR, TGA, AND SEM-EDX TECHNIQUES <i>H.M.P. Wijethunga, T.R. Widyarathne, N.M. Adassooriya, C. Tollemache, M.A. Elangasinghe</i>	
14:45 – 15:00	ICRES26_080	STRENGTHENING CLIMATE-RESILIENT INDUSTRIAL SYSTEMS THROUGH BEHAVIORALLY INFORMED FLOOD RISK GOVERNANCE <i>S.W. Goonasekara, W.R.S.S. Dharmarathna, D.M.K.S. Thalgaskotuwa</i>	
Session Coordinators	Ms. Arani Dematapitiya +94 76 497 5256	Ms. Sonalie +94 71 015 2251	

Date: 14th March 2026 | Time: 13:30 – 15:30

Climata | Session 02 | (Online)

Case Studies and Best Practices in Circular Economy and Sustainability

Join Zoom Meeting

<https://us06web.zoom.us/j/81079139421?pwd=CBJ0TDnUDkMXS0RkCdKkVxYzDHGPA7.1>

Meeting ID:

810 7913 9421

Passcode:

542605

Session Chairs	Dr. Panduka Neluwala University of Peradeniya Sri Lanka	Dr. M.G.G. Awanthi University of Ruhuna Sri Lanka
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Time	Item/ Paper ID	Description
14:00 – 14:15	ICRES26_010	DIGITALIZING FOOD WASTE MANAGEMENT FOR A CIRCULAR ECONOMY: A CASE STUDY ON SENSOR-INTEGRATED TRACKING SYSTEM IN THE HOTEL INDUSTRY <i>D.M.N. Jesika, G.M. Somaratne, N.S. Dharmarathne, D.W.N. Sandanika, T.P.G.K. Upathissa, M.A. Samarasekara</i>
14:15 – 14:30	ICRES26_020	CIRCULARITY IN CEMENT: INVESTIGATING THE USE OF BLAST FURNACE SLAG: A CASE STUDY. <i>V. Mahawaduge, A. Pallegedara</i>
14:30 – 14:45	ICRES26_028	FISH MEAL VALUE CHAIN: AN INVESTIGATION ON CIRCULAR SOLUTIONS AND CHALLENGES IN SRI LANKA <i>D.A.M. De Silva, N.H. A Vikumsara I.M. Wickramarathna, N. Gopal, M.M.S.C. Senevirathne</i>
14:45 – 15:00	ICRES26_065	TEMPORAL DYNAMICS OF LEACHATE CONTAMINATION RISK AT KERAWALAPITIYA WASTE PARK, MUTHURAJAWELA WETLAND, SRI LANKA: A LEACHATE POLLUTION INDEX APPROACH <i>S.J.S. Bandara, R.U. K. Piyadasa, S. Himanujahn, E.R. Gunawardhana</i>
15:00 – 15:15	ICRES26_041	A COMPARATIVE SUSTAINABILITY ASSESSMENT OF COSMETIC BOTTLE DESIGNS <i>P.M.M.P Thennakoon, J.R Gamage, H.P Karunathilake</i>
Session Coordinators	Ms. Reshika Ariyaratne +94 75 025 4258	Mr. Janidu +94 76 422 0371



ICRES

International Conference on
Resource Efficiency Towards Sustainability



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