

Newsletter

THE INSTITUTION OF ENGINEERS SRI LANKA

Western Australia Chapter

January 2025



IESL-WA kicked off the 2024/25 year by successfully hosting our inaugural webinar in November 2024. We have an exciting lineup of additional webinars, Continuous Professional Development (CPD), technical workshops, and career guidance seminars planned for 2025, all designed to deliver even greater value.

In this edition of the Newsletter, we would like to introduce the newly elected Management Committee for the year 2024/25. The 11th Annual General Meeting (AGM) of the Institution of Engineers Sri Lanka, WA Chapter (IESL-WA) was held on Sunday 06th October 2024 at Centenary Park, Wilson.

The Management Committee 2024/25:

- President - Raveendra Salgado (Mining/Processing)
- Vice President - Thilak Jayantha (Mechanical)
- Secretary - Dr. Tharanga Thotagamuwage (Civil)
- Editor - Saadiq Akbar (Civil)
- Treasurer - Muditha De Silva
- Ex officio - Mahesh Kariyawasam (Civil)

Committee members:

- Nandika Mirihana (Computer)
- Mathanga Perera (Mechanical)
- Nadeesha Dilrukshi (Electrical)
- Jayantha Dharmarathne
- Anupa Matharaarachchi (Civil)
- Nelupa Disanayake
- Buddhi De Silva
- Ashfaaq Niyamathulla (Civil)
- Chamara Pathirana



Figure 1 : The new executive committee elected for 2024-2025

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IESL-WA 11th Annual General Meeting - Resolutions

At our 11th AGM, we successfully adopted two significant resolutions that are set to guide our organization's future initiatives and strategic direction. Here's a more detailed look at each resolution:

1. Resolution on Professional Voluntary Service to Sri Lanka:

- **Objective:** This resolution aims to harness the expertise and skills of our members to contribute to the development and welfare of communities in Sri Lanka through voluntary service.
- **Key Actions:** We plan to organize and facilitate volunteer projects where professionals can offer their services in areas such as infrastructure development, education, healthcare, and disaster relief. This initiative will involve collaboration with local organizations and government bodies to identify areas of need and effectively deploy resources.
- **Impact:** By implementing this resolution, we hope to make a meaningful impact on the lives of Sri Lankan communities, while also providing our members with opportunities to give back to society and apply their skills in real-world scenarios.

2. Resolution on Mentoring Program for Young Engineers:

- **Objective:** This resolution is designed to support the professional growth and development of young engineers by establishing a structured mentoring program.
- **Key Actions:** The program will pair experienced professionals with young engineers to provide guidance, share knowledge, and offer career advice. It will include regular mentoring sessions, workshops, and networking events to facilitate learning and development.
- **Impact:** This initiative aims to nurture the next generation of engineers by enhancing their skills, boosting their confidence, and preparing them for leadership roles in the future. It also fosters a culture of knowledge sharing and collaboration within our organization.

Both resolutions reflect our commitment to leveraging our professional expertise for the betterment of society and supporting the development of young talent in the engineering field.

News in Brief

First Committee Meeting

The first committee meeting of the IESL-WA Chapter for the 2024/25 year, held on November 3, 2024, at the residence of our president, Raveendra Salgado, marked a significant start to our new term. This meeting was pivotal in setting the tone and direction for the upcoming year, focusing on strategic planning and the implementation of resolutions proposed at the AGM.



Figure 2 : First Committee Meeting at the residence of our president, Raveendra Salgado

Second Committee Meeting

The second committee meeting of the IESL-WA Chapter for the 2024/25 year was held on December 6, 2024, at 5:30 PM at The Kauphy Place restaurant.

- The meeting focused on reviewing the draft handover policy for committee members, emphasizing comprehensive documentation, mentorship, and a feedback mechanism to ensure smooth transitions.
- Updates on the voluntary service initiative to Sri Lanka were provided, highlighting initial steps like identifying projects and establishing local contacts, with plans for a needs assessment and volunteer recruitment.
- Progress on other action items included developments in the mentoring program for young engineers, such as mentor recruitment and material preparation, and a review of upcoming events to ensure alignment with strategic goals.
- The webinar lineup was discussed, focusing on relevant topics, potential speakers, and strategies to enhance member engagement through interactive sessions.

Overall, the meeting was productive in advancing the chapter's initiatives, demonstrating a commitment to effective governance, member engagement, and impactful service, while setting a clear roadmap for the year ahead.

News in Brief

- Our Secretary, Dr. Tharanga Thotagamuwage, met with Prof. Ranjith Dissanayake at IESL to discuss several key topics, including membership reinstatement, collaboration with IESL in providing expertise and voluntary support, mentoring for obtaining charter status in Western Australia, and establishing standards and guidelines for webinars. This meeting, held at IESL, aimed to strengthen ties and enhance collaborative efforts between the organizations, ensuring that members receive the necessary support and resources to advance their professional development and contribute effectively to the engineering community.



Figure 3 : Secretary Dr. Tharanga Thotagamuwage with Prof. Ranjith Dissanayake at IESL

Unlocking the Hidden Potential of Gem Mining Waste: A Sustainable Path Forward

By Kishari Dayananda, Nimila Dushyantha and Jagath Kulathilaka from Uva Wellassa University of Sri Lanka

Gem mining has long been an integral part of Sri Lanka's cultural and economic heritage, yet it leaves behind substantial waste in the form of gem-bearing gravel (Figure 4). This waste stream, often discarded or used to backfill mine pits, holds untapped potential for sustainable applications. If managed effectively, this waste stream could serve as valuable resources for construction and landscaping purposes. The gravel's durability and composition make it ideal for eco-friendly construction aggregates, while its natural aesthetic is perfect for landscaping elements such as pathways and garden beds. By repurposing this material, we can reduce the environmental footprint of gem mining and unlock significant economic benefits.



Figure 4: A gem mine in Sri Lanka and gem-bearing gravel waste

Despite its significant potential, a lack of awareness among miners continues to be a major barrier to the utilization of gravel. Many miners view this material as mere waste and continue the traditional practice of backfilling mine pits with it. While backfilling is necessary for land rehabilitation, using valuable gravel for this purpose is a missed opportunity. Awareness programs are crucial for educating miners about the potential applications and economic value of gravel waste. These initiatives can promote sustainable practices by encouraging the segregation and storage of gravel for reuse, rather than discarding it. A supply chain that links miners to markets for the reuse of gravel in landscaping and construction can be further developed through partnerships with local industries.

To capitalize on this opportunity, stakeholders must take concerted action. Policymakers should establish guidelines for the proper collection and storage of this waste stream, while researchers and industry leaders can spearhead pilot projects demonstrating its practical utility. Partnerships between miners and construction or landscaping industries could foster a sustainable supply chain that benefits all parties involved. By viewing gem-bearing gravel waste not as waste but as a resource, Sri Lanka's gem mining industry can set an example of sustainable practice, ensuring its prosperity while safeguarding the environment. The transition to such practices will enhance the industry's economic value and pave the way for a greener and more sustainable future.

Awareness programs can be conducted through community engagements and collaborations with mining associations. Practical demonstrations that illustrate the transformation of gravel waste into construction materials or landscaping purposes (Figure 5) can compellingly advocate for change. Additionally, mass media and social media platforms offer additional avenues for raising awareness. Targeted campaigns on these channels can reach a wider audience, including miners, industry leaders, and policymakers. Informative videos, articles, and social media posts can highlight success stories and best practices, inspiring stakeholders to embrace sustainable approaches. By harnessing the power of both digital and traditional media, the message of sustainability can resonate across the gem mining community and beyond. Another essential aspect is the establishment of a supply chain that connects miners with industries that can utilize the gravel waste. For example, partnerships between mining communities and construction or landscaping companies can facilitate the sourcing of this material. These collaborations create economic opportunities and also promote the efficient use of resources, contributing to the broader goals of sustainability.



Figure 5: Application of gem-bearing gravel waste in landscaping purposes

Research and innovation play a pivotal role in unlocking the potential of gem-bearing gravel waste. Studies can focus on identifying the most effective methods for processing and utilizing this material in various applications. For example, researchers can explore techniques to enhance the quality of gravel for use in high-strength concrete or develop innovative landscaping solutions that incorporate this material. Pilot projects can also serve as valuable demonstrations of the practical utility of this waste stream. By showcasing successful case studies, these initiatives can inspire broader adoption of sustainable practices within the gem mining industry. Furthermore, academic institutions and research organizations can collaborate with mining communities to conduct field studies and provide technical expertise.

HIGH HONOURS RECEIVED BY PROF. BUDDHIMA INDRARATNA

Professor Buddhima Indraratna of University of Technology Sydney, NSW and former Professor at University of Wollongong (UOW) and founding Director of the Centre for Geomechanics and Railway Engineering has been awarded the Order of Australia in the General Division of the Australia Day 2024 Honours List. Prof Indraratna’s research was focused on transport geotechnics, ground improvement, rock mechanics, soil engineering and many more. Professor Buddhima is a Sri Lankan Australian educated in UK and Canada.

Prof Indraratna’s railway track research involved reforming old rubber tyres into a honeycomb structure and filling each cell with compacted recycled waste materials such as building demolition waste, glass rejects and many more (Figure 6). Early trials suggest the invention could extend maintenance periods by 100 to 200 per cent, saving millions in maintenance costs, diverting waste materials from landfills and reducing the need for fresh aggregates.

Prof Buddhima Indraratna was also awarded one of the highest international accolades in lifetime Civil Engineering Practice. On the 20th of May in Madrid, Distinguished Professor Buddhima Indraratna (Director of Transport Research Centre, University of Technology Sydney, UTS) was honoured with the prestigious José Entrecanales Ibarra Foundation’s 2024 International Civil Engineer Award. The award was presented by the Vice-President of Spain, her excellency Teresa Ribera (Figure 7), during a formal ceremony in Madrid, organised by the Universidad Politécnica de Madrid (UPM). Prof Indraratna was the 1st Australian to receive this prestigious accolade awarded every 3-4 years. Since its inception in late 1990s and considered today as a Nobel equivalent in Civil Engineering



Figure 6: Construction of a railway track using recycled waste



Figure 7: Presentation of the Award to Professor Buddhima Indraratna by Her Excellency Teresa Ribera, Vice-President of Spain.

From Mining and Mineral Processing to E-waste: Circular Economy Solutions for a Resource-Limited Future

Presenter:
Dr. Saman Ilankoon

CEng (UK), FIMMM (IOM3, London), FHEA (UK), PhD (Imperial College London), DIC (Imperial College London), BSc Engineering (Honours) University of Moratuwa, Sri Lanka



DATE: Thursday 28th of November 2024

TIME: 6.00pm AWST; 3.30pm SL Time

MODE: Webinar

Zoom Meeting Link:

[https://us02web.zoom.us/j/82945984228?
pwd=pAQfO3H3vaB7PckDdOGoszyOfrTVVz.1](https://us02web.zoom.us/j/82945984228?pwd=pAQfO3H3vaB7PckDdOGoszyOfrTVVz.1)



Presentation Highlights:

- Contributions of mining and mineral processing engineers to modern global lifestyle
- Current e-waste generation and why e-waste is a global challenge
- Two sides of e-waste: E-waste management and value recovery
- Technical challenges in e-waste-based value recovery compared to primary mining and minerals processing
- Can we build modern mines and mineral processing facilities incorporating e-waste?

About the speaker

Dr. Saman Ilankoon is a senior lecturer in the Department of Chemical Engineering at the School of Engineering, Monash University Malaysia campus. He is leading the Waste and Critical Metals Sustainability Research Group.

He graduated from the University of Moratuwa, Sri Lanka, with a BSc in Engineering (Honours) in mining and mineral processing. In 2012, he obtained his PhD from the Royal School of Mines at Imperial College London. He is a chartered engineer of the Engineering Council UK. In addition, the Institute of Materials, Minerals and Mining (IOM3, London) recognised his research work, including critical metals, sustainability, waste management, and climate action. Thus, he was awarded the Fellow of IOM3 (FIMMM).

Dr. Ilankoon is enthusiastic about teaching practical engineering aspects to young engineering students by employing novel pedagogical approaches. His commitment to teaching and professionalism in learning and teaching in higher education was recognised by the AdvanceHE (UK), and he was awarded a Fellowship (FHEA). In addition, he is currently a visiting professor at the University of Science and Technology Beijing.

Institution of Engineers Sri Lanka-Western Australia Chapter

Announcements, Events, and Updates

Solar Thermal Energy for Power Generation and Storage against Solar PV

Presenter:

Dr Rohitha Weerasinghe

FIMechE, SFHEA, PhD, DIC, BSc Eng Hons

Senior Lecturer, University of Bedfordshire. | Visiting Professor NICMAR University, India. | Former Senior Lecturer, University of Moratuwa. | Former Head of Sustainability, MWL London.



DATE: Thursday 30th of January 2025

TIME: 6.00pm AWST; 3.30pm SL Time

MODE: Webinar

Zoom Meeting Link:

<https://us02web.zoom.us/j/82945984228?pwd=pAQfO3H3vaB7PckDdOGoszyOfrTVVz.1>

Presentation Highlights:



- Solar power generation is currently dominated by solar PV, but solar thermal power is a strong competitor.
- Solar thermal power offers advantages in large-scale applications, including reliable, on-demand power through thermal energy storage.
- It provides high conversion efficiencies, longer lifespans, and resilience to high temperatures, making it ideal for utility-scale projects.
- Solar thermal avoids reliance on rare materials, can hybridize with other energy sources, and supports industrial processes needing high-temperature heat.
- In regions with strong solar resources, solar thermal is often more cost-effective and efficient, offering sustainable and flexible power generation.
- A pilot project for deploying solar thermal power generation is planned in Sri Lanka.

About the speaker

Dr. Rohitha Weerasinghe has a career that bridges academia and industry. He is currently a Senior Lecturer at the University of Bedfordshire, UK, where he leads a major research project focused on developing innovative solar thermal technology for power generation. Dr. Weerasinghe earned his bachelor's degree from the University of Moratuwa and completed his PhD at Imperial College London, specializing in gas turbine combustion, with funding from Rolls Royce and SNECMA. His academic journey began as a Senior Lecturer at the University of Moratuwa before he moved to the UK on an EPSRC Fellowship.

In the industry, Dr. Weerasinghe has served as an energy and sustainability specialist, successfully leading engineering teams. Returning to academia in 2012, he has since focused on energy and engineering research. A Fellow of the Institution of Mechanical Engineers (UK) and a Senior Fellow of the Higher Education Academy (UK), he has also held fellowships with the Institution of Automotive Engineers Sri Lanka. Dr. Weerasinghe's contributions extend to scholarly publishing, serving on the editorial team of Sustainability and previously contributing to the SAE World Congress editorial team.

Institution of Engineers Sri Lanka-Western Australia Chapter

Announcements, Events, and Updates

Upcoming Events

Engineers Night

Date : 9 August 2025

Location : Vasto Club, Balcatta

Career guidance program

Date: March 2025 (Exact date TBC)

Location : TBA

Disciplinary workshops

Date : May 2025 (Exact date TBC)

Location : TBA

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