Issue **16** - July - August 2024

Ceylon Institute of Builders

CIOB

Institute for Building Professionals

Established - 1961

SRI LANKA CONSTRUCTION TODAY

12th World Construction Symposium

09th - 10th August 2024

Colombo


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Issue 16 - August 2024
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Editor's Note

As we prepare for the 12th World Construction Symposium, it is with great anticipation that we present this issue of our magazine. This edition arrives at a pivotal moment, offering a comprehensive exploration of the current landscape and future trajectory of Sri Lanka's construction sector.

Amidst ongoing economic challenges and a rapidly shifting geopolitical environment, the government's efforts in debt management, strategic diplomacy, and fiscal policy reform are crucial. The recent focus on negotiating with international creditors and addressing high public debt underscores the pressing need for innovative solutions and strategic planning. As we look forward to Budget 2024, it is imperative that we consolidate the progress made and build on the foundational work to stabilize and grow our economy.

In this context, the Ceylon Institute of Builders (CIOB) is taking proactive steps to invigorate the construction industry. Our budget proposals aim to address critical issues such as resuming stalled projects, attracting foreign investment, and alleviating financial pressures on contractors. Initiatives like supporting local manufacturing, expediting project approvals, and establishing a dedicated construction sector development fund are designed to provide much-needed relief and foster a more resilient industry.

This issue also highlights the urgent need for a separate ministry for the construction sector, acknowledging its substantial role in employment and economic contribution. Our advocacy extends to modernizing contract terms, enhancing financial support mechanisms, and learning from global best practices to drive sustainable growth.

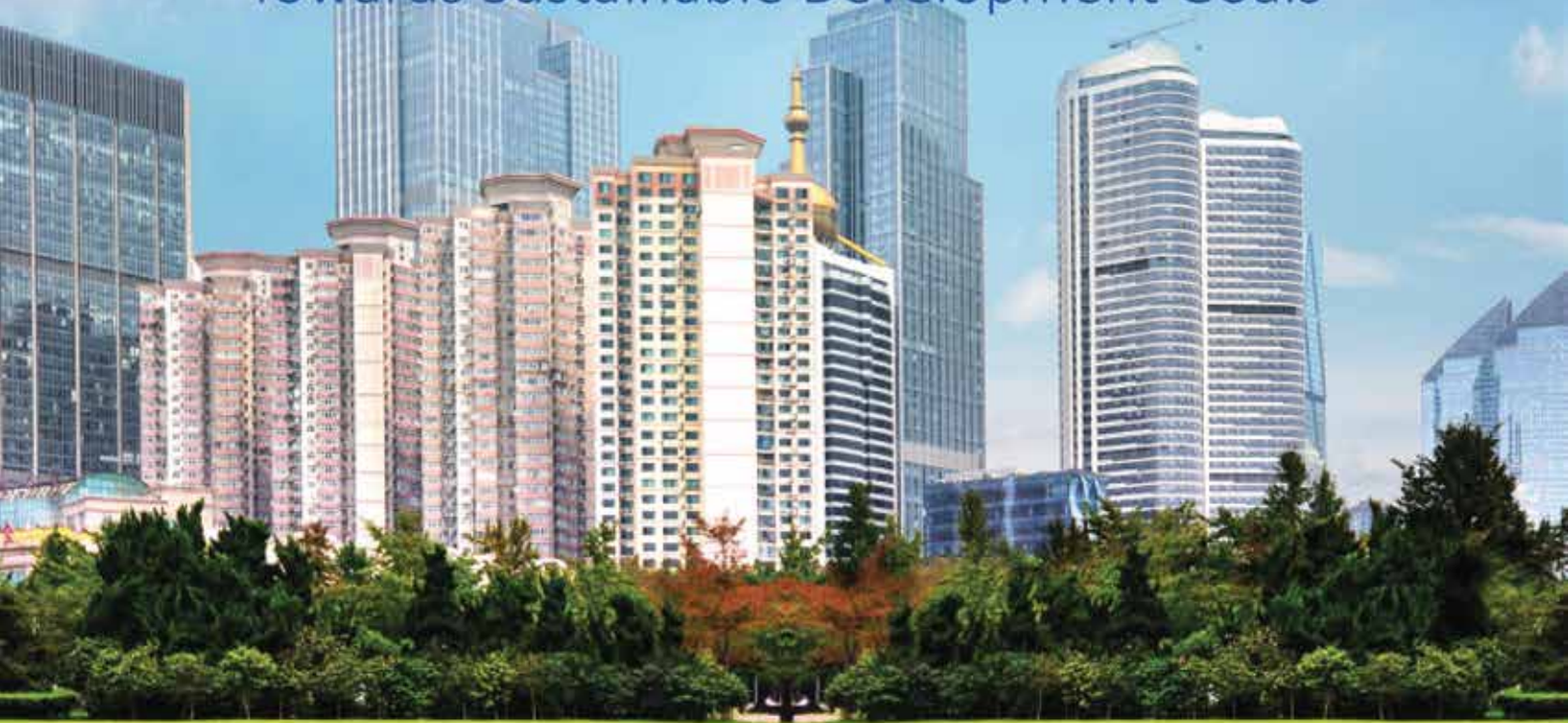
We are excited to announce that this magazine coincides with the 12th World Construction Symposium, an event that marks a significant milestone for the industry, it represents a key opportunity to showcase the latest innovations and foster collaborations that will drive our sector forward.

As we navigate these challenging times, let this magazine serve as both a source of insight and a catalyst for collective action. By leveraging our combined expertise and resources, we can overcome obstacles, embrace new opportunities, and build a vibrant and sustainable future for Sri Lanka's construction industry.

Thank you for your continued support and engagement. Together, let us pave the way for a brighter, more resilient future.

The 12th World Construction Symposium - 2024

Empowering Construction Industry: Towards Sustainable Development Goals



9–10 AUGUST 2024
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Organized by

Ceylon Institute of Builders
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Established: 1981

CEYLON INSTITUTE OF BUILDERS
(CIOB) SRI LANKA

DEPARTMENT OF BUILDING ECONOMICS
UNIVERSITY OF MORATUWA

ABOUT THE SYMPOSIUM

Since 2012, each year the World Construction Symposium has been bringing together academics, researchers, industry practitioners and students to Colombo from all over the world to share their knowledge, experience and research findings in the area of sustainable built environment through a wide range of activities such as Keynote address, Technical Sessions, Industry presentations and Panel Discussions.

The Symposium is the premier Construction related conference in Sri Lanka and is looked forward to by the Sri Lankan academics and industry practitioners. The Symposium will be promoted extensively nationally and internationally through government, private sector and other related authorities and organizations including Sri Lankan missions abroad, foreign missions in Sri Lanka, related government agencies, Chambers of Commerce and Industry Associations. In addition, our International Partners, Sponsors and Supporters will also promote the Conference through their own networks.

THEME

"Empowering Construction Industry towards Sustainable Development Goals"

DATES

AUGUST 09 & 10 2024

VENUE

Taj Samudra Hotel, Colombo

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THE CEYLON INSTITUTE OF BUILDERS (CIOB)

Established in 1961, the Ceylon Institute of Builders (CIOB) is the premier institute for Building Professionals in Sri Lanka with a strong network of Engineers, Architects, Surveyors and similar allied professions who work to inspire, encourage, educate and train students, builders, and professionals in the country. http://www.ciob.lk/

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The Department of Building Economics, University of Moratuwa, is the pioneer Sri Lankan institution to offer programs in Quantity Surveying, Facilities Management, Project Management, Construction Law and Dispute Resolution and Occupational Safety and Health Management. Building Economics and Management Research Unit (BEMRU) is the research arm of the Department of Building Economics, which specializes in research in Building Economics and Management in the country as well as internationally. www.becon.mrt.ac.lk

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- Institute of Quantity Surveyors, Sri Lanka
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- Chamber of Construction Industry, Sri Lanka
- Federation of Chambers of Commerce & Industry of Sri Lanka

1st World Construction Symposium,

1st World Construction Symposium on the theme "Global Challenges In Construction Industry" held during 28 – 30 June 2012 at the Cinnamon Grand Hotel, Colombo.

2nd World Construction Symposium,

2nd World Construction Symposium on the theme "Socio-Economic Sustainability in Construction: Practice, Policy & Research" held during 14 - 16 June, 2013 at the Cinnamon Lakeside Hotel in Colombo.

3rd World Construction Symposium,

3rd World Construction Symposium on the theme "Sustainability & Development in Built Environment: The Way Forward" held during 20 - 22 June, 2014 at the Galadari Hotel in Colombo.

4th World Construction Symposium,

4th World Construction Symposium on the theme Sustainable Development in the Built Environment: Green Growth & Innovative Directions" held during 12 - 14 June, 2015 at the Galadari Hotel in Colombo.

5th World Construction Symposium,

5th World Construction Symposium on the theme "Greening Environment , Eco Innovations & Entrepreneurship" held during 29 - 31 July 2016, at the Galadari Hotel in Colombo.

6th World Construction Symposium,

6th World Construction Symposium on the theme "What's New and What's Next in the Built Environment Sustainability Agenda" held during 30 June – 01 July 2017, at the Galadari Hotel in Colombo.

7th World Construction Symposium on the theme "Built Asset Sustainability: Rethinking Design, Construction and Operations" held during 29 June – 01 July 2018, at the Galadari Hotel in Colombo.

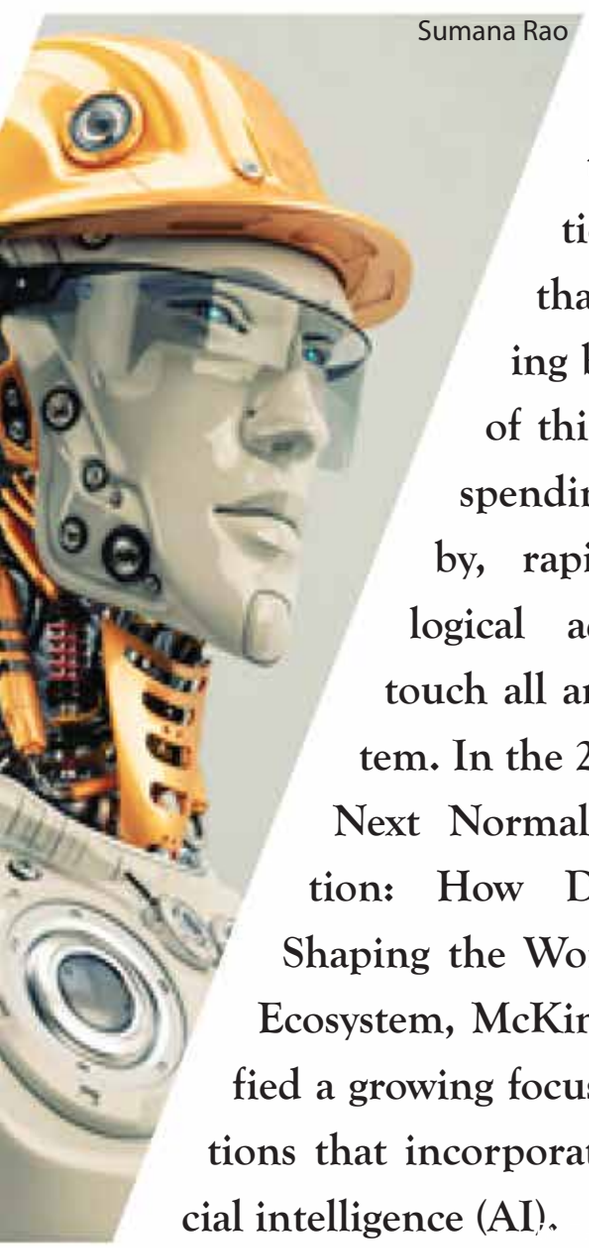
8th World Construction Symposium on the theme "Towards a Smart, Sustainable and resilient built environment" held during 8 - 9 Nov. 2019, at the Galadari Hotel in Colombo.

9th World Construction Symposium on the theme "Reshaping Construction : Strategic, structural and cultural transformations towards the Next Normal" held during 9 - 10 July 2021, Online.

10th World Construction Symposium on the theme "Sustainability and resilience in the built environment Changed Perspectives" held during 24 - 26 Juny 2022, Online.

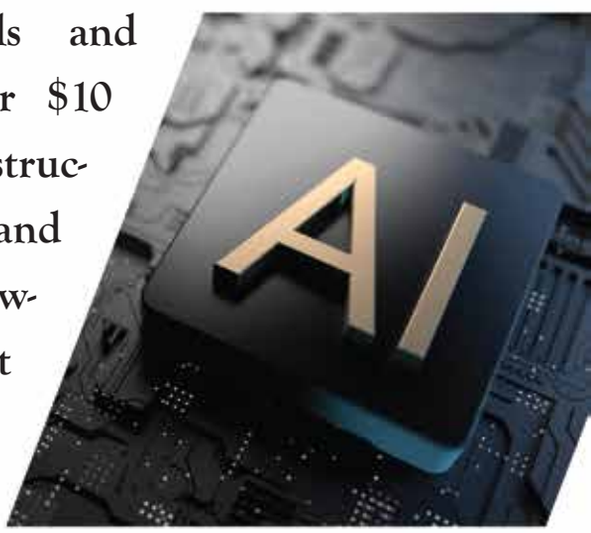
11th World Construction Symposium on the theme "Accelerating Sustainability in the Built Environment: Policies, Practices, and Perspectives" held during 21 - 22 July 2023, at the Galadari Hotel in Colombo.

THE BENEFITS OF AI IN CONSTRUCTION



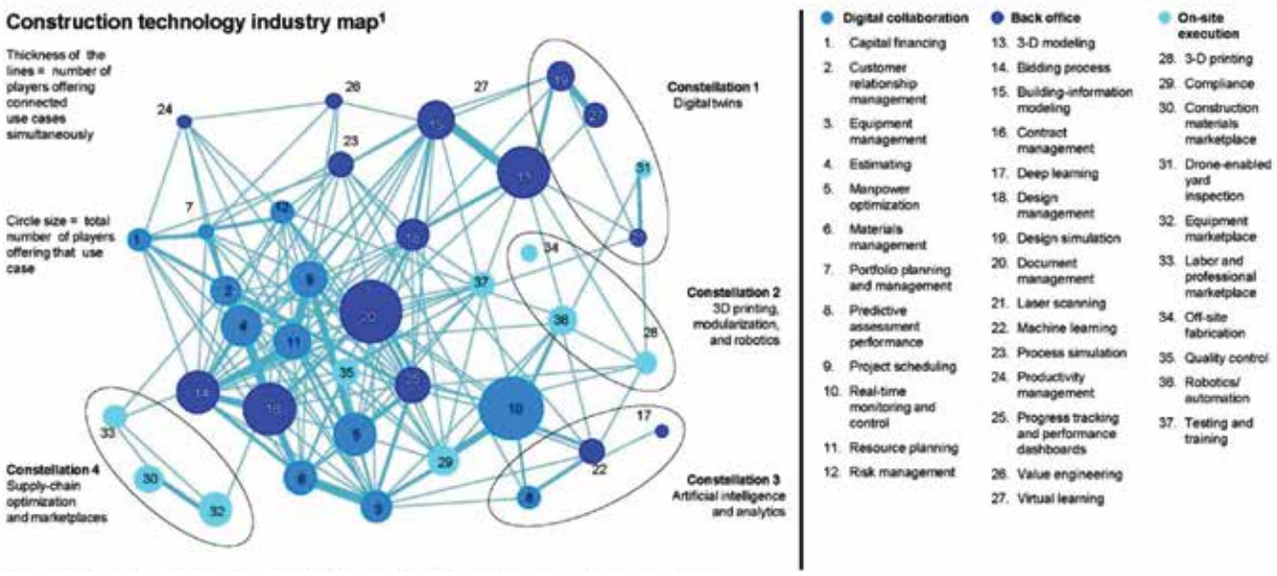
Sumana Rao

Globally, individuals and businesses spend over $10 trillion per year on construction-related activities – and that's projected to keep growing by 4.2% until 2023. Part of this enormous amount of spending is on, and enabled by, rapidly-moving technological advancements that touch all areas of the ecosystem. In the 2020 report, The Next Normal in Construction: How Disruption is Shaping the World's Largest Ecosystem, McKinsey identified a growing focus on solutions that incorporate artificial intelligence (AI).



AI in construction has the potential to help players realize value throughout project lifecylces, including: Design, bidding, and financing; procurement and construction; operations and asset management; and, business model transformation. AI in construction helps the industry as a whole overcome some of our toughest challenges, including safety concerns, labor shortages, and cost and schedule overruns.

Construction Technology is a rich and growing interconnected ecosystem of hardware and software solutions



As market barriers to entry steadily lower, and advancements in AI, machine learning (ML), and analytics accelerate, you can expect AI (and allocation of resources funneled towards AI) to play a more significant role in construction in the coming years.

Keep reading to understand how AI is used in construction and the 10 main benefits of using AI in construction

WHAT IS ARTIFICIAL INTELLIGENCE & MACHINE LEARNING IN CONSTRUCTION?

Artificial intelligence (AI) is an aggregative term for describing when a machine mimics human cognitive functions, like problem-solving, pattern recognition, and learning. Machine learning is a subset of AI.

Machine learning is a field of artificial intelligence that uses statistical techniques to give computer systems the ability to "learn" from data, without being explicitly programmed. A machine becomes better at understanding and providing insights as it is exposed to more data.

As Trimble machine learning engineer Bob Banfield put it when we asked him about deep learning in construction, "Machine learning includes many algorithms. Here's a quick example: if you were looking to find out whether or not you are liable to get some type of disease, one type of learning algorithm might work its way through a tree of questions like, how old are you?' Then, 'okay, do you exercise?' And, so on. If you say yes, you go down one branch, and if you say no, then you go down another. That's a perfectly valid machine learning algorithm. It's like the game 20 Questions you might've played as a kid, except in machine learning those questions are automatically generated."

As applied in construction, the 'questions' and algorithms get significantly more complex. For instance, a machine learning program may track and evaluate progress in a grading plan to identify schedule risks early. The algorithms might 'ask questions' about cut and fill volume measurements, machine uptime and downtime, weather patterns, previous projects, or any number of inputs to generate a risk score and determine if notifications need to be made.

AI & MACHINE LEARNING FOR SMART CONSTRUCTION

The potential applications of machine learning and AI in construction are vast. Requests for information, open issues, and change orders are standard in the industry. Machine learning is like a smart assistant that can scrutinize this mountain of data. It then alerts project managers about the critical things that need their attention. Several applications already use AI in this way. Its benefits range from mundane filtering of spam emails to advanced safety monitoring

10 EXAMPLES OF AI IN CONSTRUCTION

1. PREVENT COST OVERRUNS

Most mega projects go over budget despite employing the best project teams. Artificial Neural Networks are used on projects to predict cost overruns based on factors such as project size, contract type and the competence level of project managers. Historical data such as planned start and end dates are used by predictive models to envision realistic timelines for future projects. AI helps staff remotely access real-life training material which helps them enhance their skills and knowledge quickly. This reduces the time taken to onboard new resources onto projects. As a result, project delivery is expedited.

2. AI FOR BETTER DESIGN OFBUILDINGS THROUGH GENERATIVE DESIGNS

Building Information Modeling is a 3D model-based process that gives architecture, engineering and construction professionals insights to efficiently plan, design, construct and manage buildings and infrastructure. In order to plan and design the construction of a project, the 3D models need to take into consideration the architecture, engineering, mechanical, electrical, and plumbing (MEP) plans and the sequence of activities of the respective teams. The challenge is to ensure that the different models from the sub-teams do not clash with each other.

The industry uses machine learning in the form of AI-powered generative design to identify and mitigate clashes between the different models generated by the different teams to prevent rework. There is software that uses machine learning algorithms to explore all the variations of a solution and generates design alternatives. Once a user sets up requirements in the model, the generative design software creates 3D models optimized for the constraints, learning from each iteration until it comes up with the ideal model.

3. RISK MITIGATION

Every construction project has some risk that comes in many forms such as quality, safety, time, and cost risk. The larger the project, the more risk, as there are multiple sub-contractors working on different trades in parallel on job sites. There are AI and machine learning solutions today that general contractors use to monitor and prioritize risk on the job site, so the project team can focus their limited time and resources on the biggest risk factors. AI is used to automatically assign priority to issues. Subcontractors are rated based on a risk score so construction managers can work closely with high-risk teams to mitigate risk.

4. PROJECT PLANNING

One construction intelligence company launched in 2017 with the promise that its robots and artificial intelligence hold the key to solving late and over budget construction projects. The company uses robots to autonomously capture 3D scans of construction sites and then feeds that data into a deep neural network that classifies how far along different sub-projects are. If things seem off track, the management team can step in to deal with small problems before they become major issues. Algorithms of the future will use an AI technique known as "reinforcement learning." This technique allows algorithms to learn based on trial and error. It can assess endless combinations and alternatives based on similar projects. It aids in project planning since it optimizes the best path and corrects itself over time.

5. AI MAKES JOBSITES MORE PRODUCTIVE

There are companies that are starting to offer self-driving construction machinery to perform repetitive tasks more efficiently than their human counterparts, such as pouring concrete, bricklaying, welding, and demolition. Excavation and prep work is being performed by autonomous or semi-autonomous bulldozers, which can prepare a job site with the help of a human programmer to exact specifications. This frees up human workers for the construction work itself and reduces the overall time required to complete the project. Project managers can also track job site work in real time. They use facial recognition, onsite cameras, and similar technologies to assess worker productivity and conformance to procedures.

6. AI FOR CONSTRUCTION SAFTY

Construction workers are killed on the job five times more often than other laborers. According to OSHA, the leading causes of private sector deaths (excluding highway collisions) in the construction industry were falls, followed by struck by an object, electrocution, and caught-in

between. A Boston-based construction technology company create an algorithm that analyzes photos from its job sites, scans them for safety hazards such as workers not wearing protective equipment and correlates the images with its accident records. The company says it can potentially compute risk ratings for projects so safety briefings can be held when an elevated threat is detected. It even began ranking and releasing safety scores for each U.S. state based on COVID-19 compliance in 2020.

7. AI WILL ADRESS LABOR SHORTAGES

Labor shortages and a desire to boost the industry's low productivity are compelling construction firms to invest in AI and data science. A 2017 McKinsey report says that construction firm could boost productivity by as much as 50 percent through real-time analysis of data. Construction companies are starting to use AI and machine learning to better plan for distribution of labor and machinery across jobs.

A robot constantly evaluating job progress and the location of workers and equipment enables project managers to tell instantly which job sites have enough workers and equipment to complete the project on schedule, and which might be falling behind where additional labor could be deployed.

An AI-powered robot such as Spot the Dog can autonomously scan a jobsite every night to monitor progress - making it possible for a large contractor like Mortenson to get more work done in remote areas where skilled labor is in short supply.

8. OFF-SITE CONSTRUCTION

Construction companies are increasingly relying on off-site factories staffed by autonomous robots that piece together components of a building, which are then pieced together by human workers on-site. Structures like walls can be completed assembly-line style by autonomous machinery more efficiently than their human counterparts, leaving human workers to finish the detail work like plumbing, HVAC and electrical systems when the structure is fitted together.

9. AI & BIG DATA IN CONSTRUCTION

At a time when a massive amount of data is being created every day, AI systems are exposed to an endless amount of data to learn from and improve every day. Every job site becomes a potential data source for AI. Data generated from images captured from mobile devices, videos, security sensors, building information modeling (BIM), and others have become a pool of information. This presents an opportunity for construction industry professionals and customers to analyze and benefit from the insights generated from the data with the help of AI and machine learning systems.

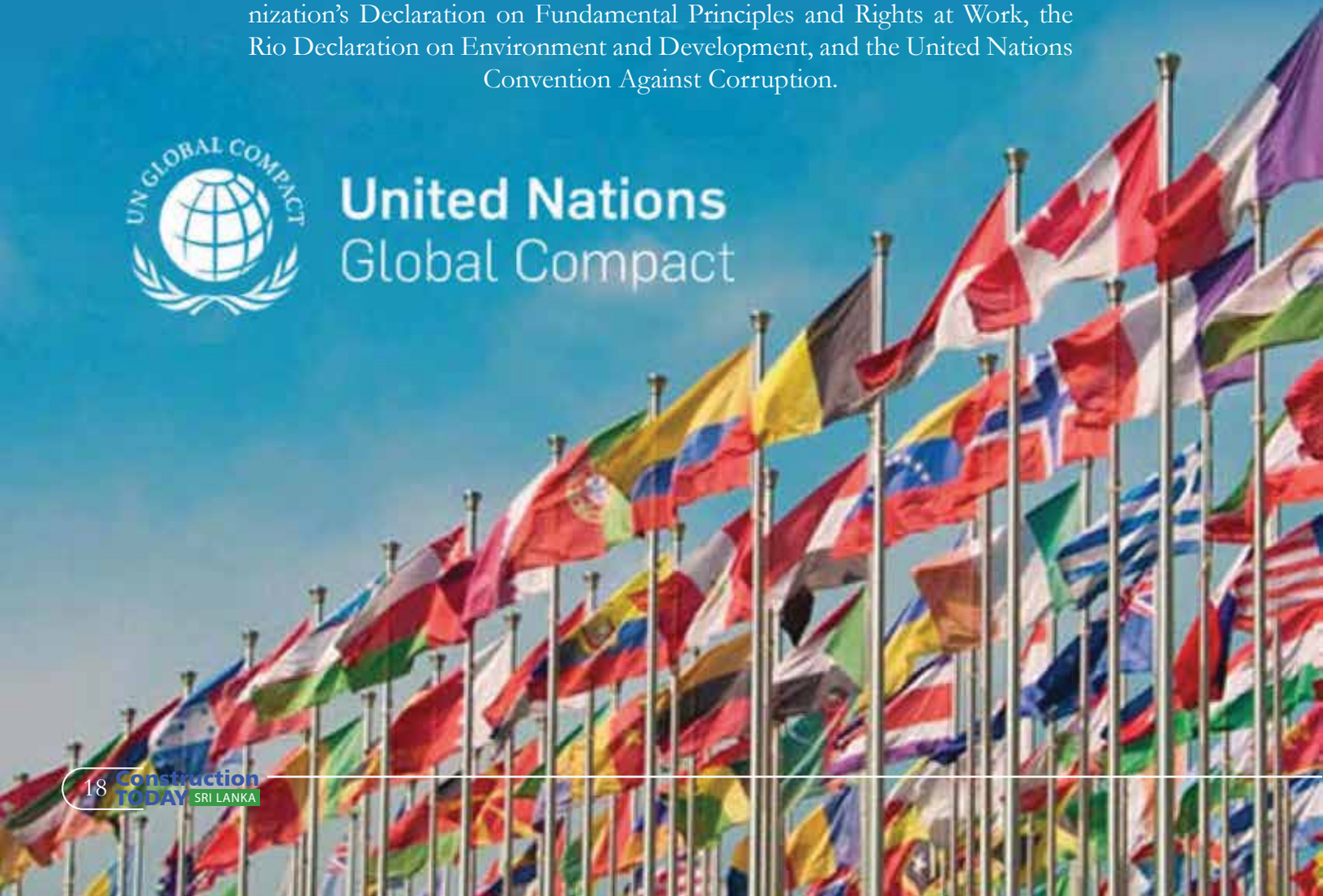
10. AI FOR POST-CONSTRUCTION

Building managers can use AI long after construction is complete. By collecting information about a structure through sensors, drones, and other wireless technologies, advanced analytics and AI-powered algorithms gain valuable insights about the operation and performance of a building, bridge, roads, and almost anything in the built environment. This means AI can be used to monitor developing problems, determine when preventative maintenance needs to be made, or even direct human behavior for optimal security and safety.

THE 10 PRINCIPLES OF THE UN GLOBAL COMPACT

Corporate sustainability starts with a company's value system and a principles-based approach to doing business. This means operating in ways that, at a minimum, meet fundamental responsibilities in the areas of human rights, labour, environment and anti-corruption. Responsible businesses enact the same values and principles wherever they have a presence, and know that good practices in one area do not offset harm in another. By incorporating the Ten Principles of the UN Global Compact into strategies, policies and procedures, and establishing a culture of integrity, companies are not only upholding their basic responsibilities to people and planet, but also setting the stage for long-term success.

The Ten Principles of the United Nations Global Compact are derived from: the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.



HUMAN RIGHTS

Principle 1:

Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2:

make sure that they are not complicit in human rights abuses.

LABOUT

Principle 3:

Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4:

the elimination of all forms of forced and compulsory labour;

Principle 5:

the effective abolition of child labour; and

Principle 6:

the elimination of discrimination in respect of employment and occupation.

ENVIRONMRNT

Principle 7:

Businesses should support a precautionary approach to environmental challenges;

Principle 8:

undertake initiatives to promote greater environmental responsibility; and

Principle 9:

encourage the development and diffusion of environmentally friendly technologies.

ANTI-CORRUTION

Principle 10:

Businesses should work against corruption in all its forms, including extortion and bribery.

Courtesy : United Nations Global Compact

SUSTAINABLE CONSTRUCTION PRACTICES

There are several practices to make construction projects more sustainable. For example, building materials reduce mining and processing costs. Contractors can also reduce fuel consumption by sourcing materials near a construction site. There is also a need for efficient project management systems to minimize downtime

MATERIALS AND RESOURCES

In 2010, researchers from the Schools of Architecture at the University of Seville, Spain, and the University of Strathclyde in Glasgow, UK, discovered new and greener ways to produce wool and clay bricks. Wool and clay bricks reduce pollution through greenhouse gases are they do not require kiln fires.

Plastic is known to harm the environment but can be very beneficial if used appropriately in construction. Plastic materials do not degrade over long periods and require less replacement and maintenance than traditional building materials. Therefore, manufacturers should incorporate recycled plastic to create durable recycled construction materials.

Wood only requires a little energy to produce. However, we must manage forests properly to provide wood as a renewable construction material and preserve wildlife habitats.

Contractors can use straw bales for insulation as they offer a greener alternative to concrete and plaster. In addition, straw bales are sustainable and affordable.

ENERGY EFFICIENCY

Renewable energy is an excellent way to promote energy efficiency in construction. The modular battery system is popularly used to power vehicles, machinery, and electric power tools. The modular battery system deploys quickly and recharges via solar panels. The system benefits the environment by offsetting tons of carbon dioxide and approximately 100l of diesel weekly.

Sustainable buildings are designed to consume as little energy as possible. Energy efficiency can be as simple as good insulation to maintain a certain temperature level

and consume less power for heating and cooling. Energy-efficient buildings also make the most of sunlight to keep the building warm. Building designers can achieve energy efficiency by using low-reflective glass and double-glazed windows to let in natural light while reducing the need for electricity in the daytime.

Wind turbines and solar panels can generate power at the construction site and partially meet the energy requirements of a building. Solar power may not be a good energy source for large commercial buildings but can reduce energy costs.

WATER EFFICIENCY

Buildings consume a lot of water. Sustainable construction aims to reduce water consumption through recycling and reusing when possible. For example, low-flow or dual-flush toilets are now used to reduce water usage as they use up to five times less water than ordinary toilets. In addition, modern sink faucets are designed to turn themselves off and aerate water so that less is used.

Using rainwater for landscaping and irrigation is also a great way to make a building more water-efficient.

INDOOR AND ENVIRONMENTAL QUALITY

Sustainable construction goes beyond using the newest materials. It involves building methods that enhance renewable and sustainable efforts. These methods include constructing green buildings, cutting materials with precision to minimize waste, proper waste management, treating water on-site, recycling, conserving energy, and selecting sustainable recycled building materials.

INNOVATION AND DESIGN

Construction projects can achieve environmental and social sustainability through careful innovation and design. For example, innovative techniques such as low-flow toilets have significantly reduced building water and energy consumption.

Social sustainability aims to improve the quality of life of the people inhabiting a building. Being sustainable means allowing these people's current and future needs to influence the design of a building, creating a flexible construction that can be repurposed with evolving needs.

A sustainable design can apply to a multi story office building and a single-family home. It can be used longer and reduces the need to tear down an old building only to rebuild a new one.

INDOOR AND ENVIRONMENTAL QUALITY

Sustainable construction aims to improve both the indoor and environmental quality of a building. Sustainability ensures that the indoor environment of a building is safe and healthy for the occupants.

For example, workers in an office building are more comfortable and productive when they have natural light and high indoor air quality. The HVAC system must efficiently eliminate pollutants that could cause sickness, and the paint and insulation should be chemical-free.

SITE SELECTION AND PLANNING

Site selection and planning involve the choice of a construction location that is optimal for sustainability. For example, construction is more sustainable with access to raw materials.

The location and orientation of a building play a vital role in its sustainability. For example, a commercial building too far from residential areas will harm the environment as people travel farther to get there. Buildings must be designed to use existing infrastructure and fit seamlessly into the atmosphere.

Courtesy : ProEst

JUXTAPOSES OF ANCIENT & FUTURE:

SHENZHEN BAY CULTURE PARK

The "Shenzhen Bay Culture Park" masterplan and architectural design have been revealed by MAD Architects, under the direction of Ma Yansong. The innovative cultural complex in Shenzhen, China, encompasses an approximately 51,000-square-meter plot of land and has a total building area of 182,000 square meters. It includes the Creative Design Hall and the Shenzhen Science and Technology Museum with public green space along the waterfront.

"Shenzhen Bay Culture Park" juxtaposes two transcendental scales of time, the "ancient" and the "future". It creates an ethereal creative urban landscape in the metropolis of Shenzhen and the serene oceanfront.

MAD's system is composed of a huge green plaza. The ground level is divided into a welcome area, formal exhibition spaces, public education spaces, library, auditorium, theatre, café, etc… These programmed components are still disregarded since they are buried under the ground. They are pictured as a landscape of earth art. Urban space and open green space are freely combined via pedestrian walkways that connect the city and the park. Several sunken courtyards of varying heights are created around the park by the roof's gradual slanting as it naturally sinks into the earth.

This "three-dimensional" citizen's park is built on a base of expansive green roofs and open

courtyards. It serves as a performance stage and an exhibition area in addition to being a 24-hour open public space. The site's focal point, a reflecting pool, doubles as a 10,000-person capacity "en plein air" beachside amphitheater. Numerous platforms spread out throughout the eternal landscape serve as outdoor performance spaces and public art display areas, creating a vibrant public place for holding music and art festivals.

The park is a continuation of the city's main thoroughfare that leads to the water. Citizens have a large leisure area near the shore. The north and south pavilions are located on either side of the axis as smooth, imposing stones that blend in gently with their surroundings.

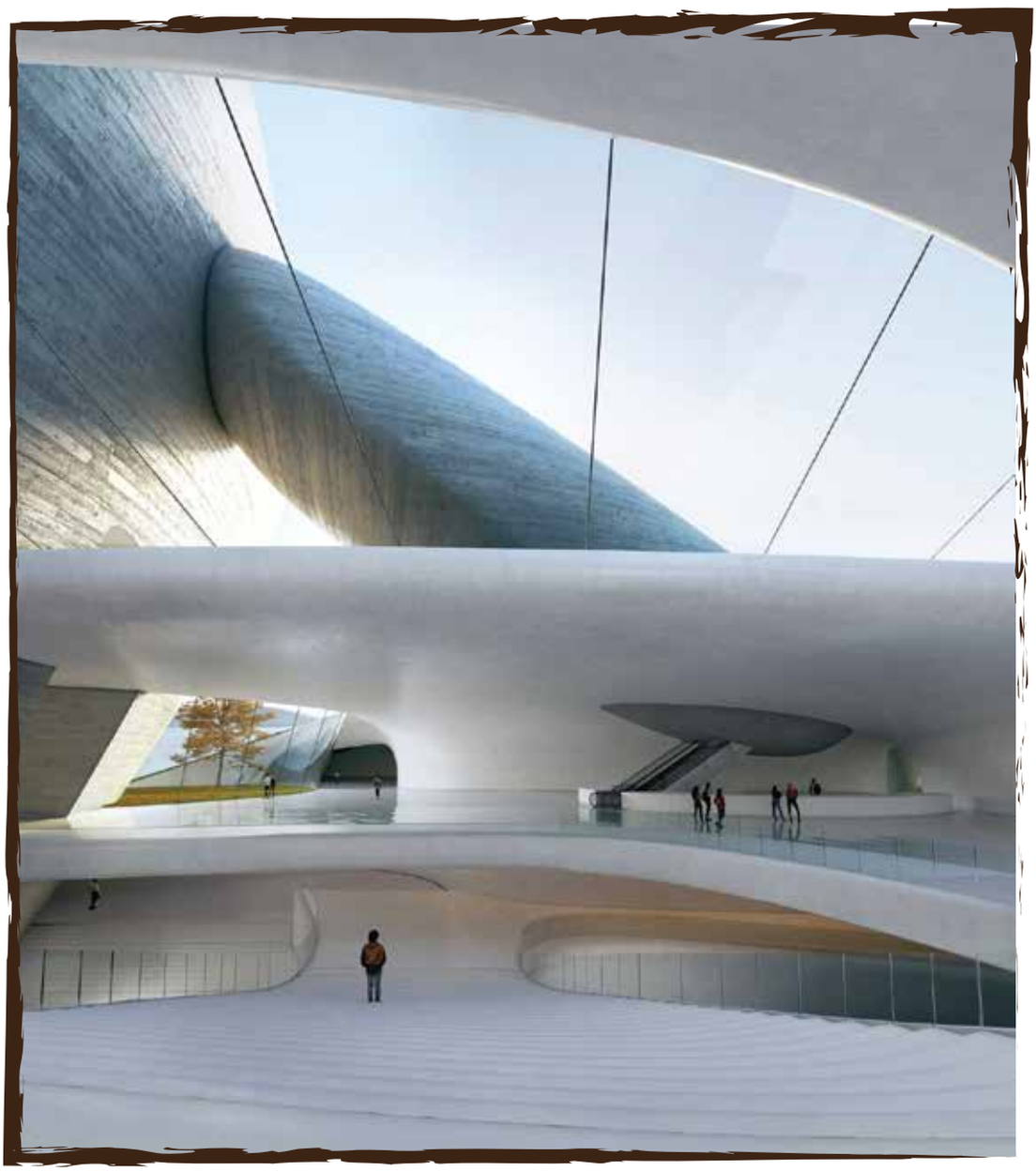
The ocean in front of them and the open quiet of nature in front of them serve as a singular timekeeper as they recline by the city's impressive growth.

Visitors can pass through the exhibition area on the top level of the south pavilion to get to a viewing area with a view of Shenzhen Bay and the skyline of the city. The tallest area in the unique display hall rises to 30 meters. Large-scale installations, movies, and performances may all be displayed in this one-of-a-kind gallery, which produces remarkable architectural spatial effects.

The major public area on the first level has floor-to-ceiling windows and skylights that let natural light fill the room while also pulling the outside view and spirit of the park within, obfuscating the line between in and out.

Several uniform display spaces may accommodate a variety of works, including sculptures and exhibitions from special collections, in the main public area. These exhibition rooms are adaptable to a range of thematic circumstances thanks to their adaptability.

The Houhai neighborhood of Shenzhen's Nanshan district is home to the "Shenzhen Bay Culture Park." This region's economy has grown quickly during the last ten years to become the city's innovation hub. The district's GDP surpassed 600 billion RMB in 2019. It is home to renowned companies like Alibaba Cloud, Huawei, and Tencent, earning it the nickname "China's Silicon Valley." The many high-rise buildings that have sprung up because of economic and technical advancement now provide a striking background to MAD's design. One of the ten new cultural facilities driven by the Shenzhen urban development is the "Shenzhen Bay Culture Park," which represents Shenzhen's aspirations to develop into a "city of culture with worldwide influence."



PROJECT INFO:
Location: Shenzhen, China
Type: Exhibition Halls, Park
Time: 2018-2023
Site Area: approx. 51,000 square meters
Building Area: 182,000 square meters

TEAM:

Principal Partners-in-Charge:
Ma Yansong, Dang Qun, Yosuke Hayano

Associate Partners-in-Charge:
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Courtesy : parametric-architecure

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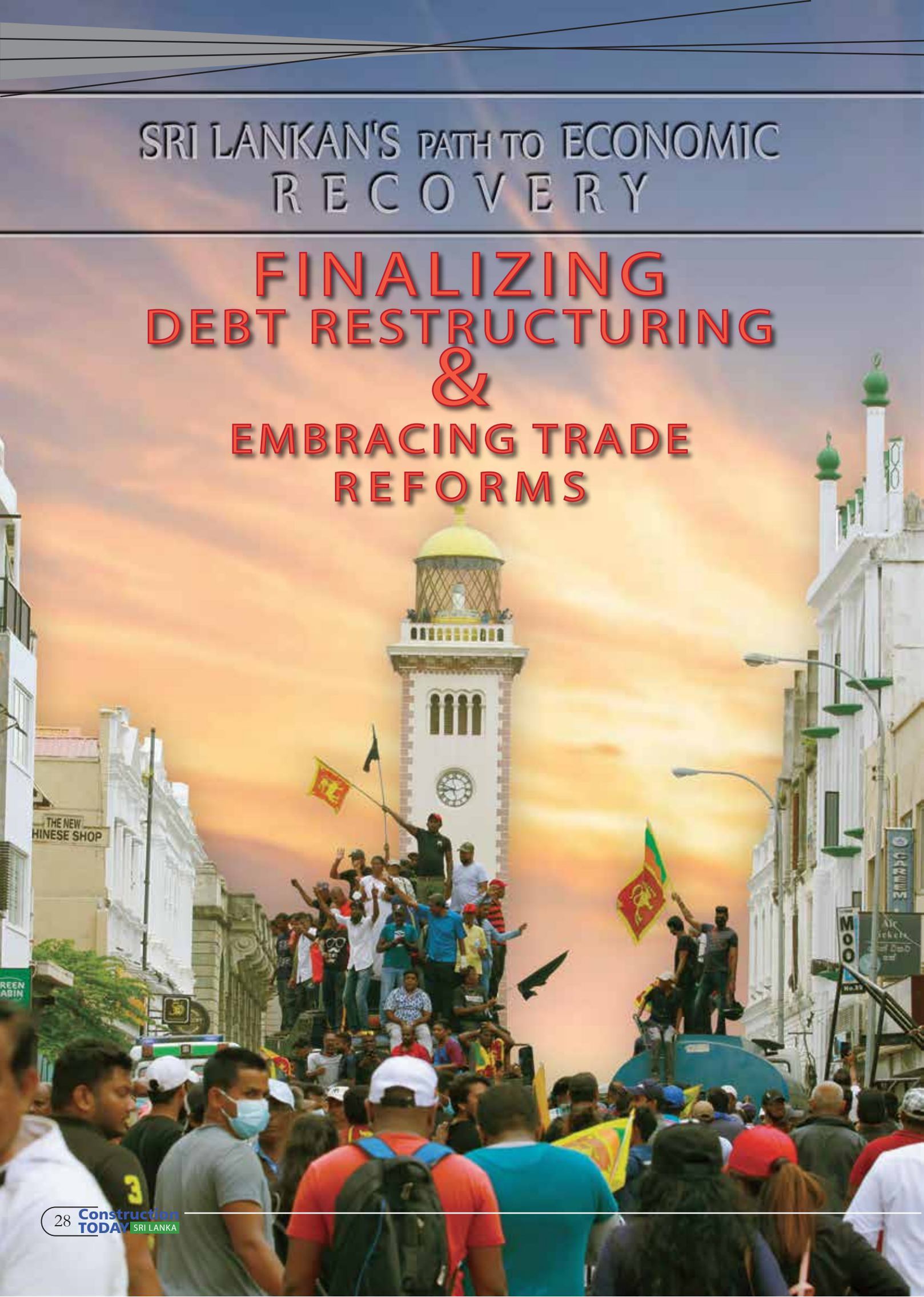
SRI LANKAN'S PATH TO ECONOMIC RECOVERY

FINALIZING DEBT RESTRUCTURING & EMBRACING TRADE REFORMS



In 2022, Sri Lanka found itself at the brink of an unprecedented economic crisis. Longstanding structural weaknesses, compounded by a series of external and internal shocks, brought the country to its knees. Poor fiscal management, a restrictive trade regime, a weak investment climate, episodes of loose monetary policy, an administered exchange rate, and governance weaknesses, all contributed to deep macroeconomic imbalances. Fiscal indiscipline led to high deficits and large gross financing needs, which, coupled with high cost borrowing, elevated debt vulnerabilities. Ill-timed tax cuts in 2019 further eroded weak fiscal buffers and caused debt to grow to unsustainable levels.

By early 2020, Sri Lanka had lost access to international financial markets, and its official reserves dropped precipitously. Forex liquidity constraints led to severe shortages of essential goods in 2022. The country announced a selected external debt service suspension in April 2022, pending debt restructuring. Amid the crisis, half a million jobs were lost, food insecurity and malnutrition increased, poverty doubled, and inequality widened. The economy contracted by 7.8 percent in 2022 and a further 2.3 percent in 2023. Key sectors such as construction, manufacturing, real estate, and financial services suffered heavily due to shrinking private credit, shortages of inputs, and supply chain disruptions.

THE COMPOSITION OF FOREIGN DEBT

Sri Lanka's foreign debt amounts to USD 37 billion, comprising USD 10.6 billion in bilateral debt, USD 11.7 billion in multilateral debt, and USD 14.7 billion in commercial loans which includes USD 12.5 billion in sovereign bonds. It is important to understand the origins of this debt. Lending countries provide loans using the tax money and savings of their citizens. Therefore, when discussing debt restructuring and concessions, it is crucial to consider the responsibilities we have towards the citizens of these lending countries. The debt relief provided by lenders is their contribution to the restoration of Sri Lanka's debt sustainability, whilst in turn Sri Lanka improves its fiscal discipline and economic management.

STEPS TOWARDS RECOVERY

To navigate out of this crisis, the Sri Lankan government, under the leadership of President Ranil Wickremesinghe, implemented a series of comprehensive structural reforms aimed at regaining macroeconomic stability and achieving a sustainable growth path. These included cost-reflective utility pricing, revenue-enhancing measures, and reforms in trade, investment, state-owned enterprises (SOEs), and social protection. Key legislation was enacted on monetary policy, debt, and public financial management. In March 2023, the IMF approved a 48-month Extended Fund Facility of approximately USD 3 billion to support the government's reform program, complemented by budget support from development partners, including the World Bank and Asian Development Bank.

The Parliament approved a domestic debt restructuring strategy in July 2023, which made a key contribution to the required debt relief whilst also ensuring the continued stability of the financial sector. Inflation, which peaked at 69.8 percent in September 2022, sharply declined to 1.7% by June 2024 due to coordinated monetary and fiscal policy measures. .This deceleration in inflation benefited household welfare, limiting further increases in food insecurity and malnutrition, especially among vulnerable households. The Central Bank began loosening monetary policy as inflation decelerated, cutting policy rates by 250 basis points in June 2023 and by another 200 basis points in July, with subsequent rate cuts bringing the Standing Deposit Facility rate down to 8.5 percent and the Standing Lending Facility rate to 9.5 percent at present.

PROGRESS UNDER PRESIDENT RANIL WICKREMESINGHE

Under President Ranil Wickremesinghe's leadership, significant progress has been made in stabilizing and revitalizing the economy. Key reforms and measures include:

1. FISCAL DISCIPLINE & REVENUE MOBILIZATION:

▲ The government implemented revenue-based fiscal consolidation, which saw government revenue grow by 44% from January to May 2024 compared to the same period in the previous year. During this same period, government expenditure declined by 7%. The budget deficit narrowed by Rs. 653 billion or 64% to Rs. 367 billion in the first five months of 2024 compared to Rs. 1,019 billion during the first five months of 2023.

▲ The government achieved a primary budget surplus of Rs. 554 billion in the first five months of 2024, a significant increase from the Rs. 42.7 billion surplus recorded in the same period of 2023.

2. DEBT MANAGMENT & REDUCTION:

▲ Central Government debt, which stood at Rs. 28,696 billion at the end of 2023, declined to Rs. 28,484 billion by March 2024. This decline is even more significant when considering debt as a percentage of GDP.

▲ The debt restructuring agreements reached with the Official Creditor Committee (OCC) and China Exim Bank, covering USD 10 billion in debts, have provided substantial relief through extended payment periods, capital grace periods, and reduced interest rates.

▲ The restructuring agreement reached with bondholders (pending assessment by the IMF and the OCC), will provide further debt relief quantified at 40% Net Present Value relief (at a discount rate of 11%) in the baseline scenario.

3. MONETARY POLICY & INFLATION CONTROL:

▲ The Central Bank's decisive actions to loosen monetary policy, calibrated with the reduction in inflation, have created a more favorable economic environment. Policy rate cuts and positive outcomes of domestic debt restructuring have helped bring the Prime Lending Rate (PLR) down from almost 30% to 9% at present.

4. TRADE & INVESTMENT REFORMS:

▲ The steps taken towards establishing the Trade National Single Window (TNSW) is a critical step towards enhancing trade competitiveness. This initiative, long delayed, is now being implemented to streamline trade facilitation mechanisms, making it easier for businesses to operate and compete internationally.

▲ Legislative measures, such as the Economic Transformation Bill, are being put in place to support export growth and attract foreign direct investment (FDI). The bill aims to establish key institutions like the Economic Commission and the Office for International Trade,

which will play pivotal roles in promoting and facilitating FDI and negotiating strategic free trade agreements, along with the establishment of the Productivity Commission to support capacity development of exporters and domestic industry.

▲ The Cabinet of Ministers recently approved a new National Tariff Policy, which is expected to strike a more appropriate balance between the interest of consumers, exporters, importers, and domestic industry.

5. SOCIAL PROTECTION & POVERTY ALLEVIATION:

▲ The government has introduced targeted social protection reforms to mitigate the adverse effects of economic adjustments on vulnerable populations. These measures aim to reduce poverty and improve food security and nutrition, especially among the most affected households. Through the Aswesuma programme, the government has allocated over three times the funds allocated for similar cash-transfers in the pre-pandemic period (2019).

RECENT EXTERNAL ECOMOMY DEVLOOPMENTS

Due to the combined impacts of fiscal and monetary policy improvements, Sri Lanka in 2023 recorded a surplus in the current account of the balance of payments, the first since 1977. Whilst imports remained subdued due to restrictions imposed in the first half of 2023, the rapid recovery of earnings from tourism and remittances provided a strong boost to foreign exchange inflows. The improved foreign exchange liquidity enabled the Rupee to appreciate from Rs. 363/USD in early 2023 to around Rs. 304/USD at present. Foreign exchange reserves have recovered to USD 5.6 billion (including the PBOC swap which has conditions on usability), from a point where usable reserves were at near zero levels in April 2022.

ADDRESSING PUBLIC MISCONCEPTIONS ON DEBT RESTRCTURING

There are various opinions expressed both within Sri Lanka and internationally regarding debt write-offs, loan grace periods, and extension of repayment periods. Many of these opinions are not fully accurate. For instance, some people believe Sri Lanka should seek concessions on foreign loans without making any commitments. However, this approach is neither practical nor feasible according to international practices. Just as we must responsibly manage the tax money and savings of our citizens, we must also honour commitments when borrowing from other countries, which use their citizens' tax money and savings to extend financial support to countries like Sri Lanka.

Debt restructuring is a challenging endeavour. International economic experts agree that it is a difficult and painful process for creditors, debtors, citizens of the debtor country, and mediators alike. Official bilateral creditors typically do not reduce the principal amount of a loan. Instead, concessions such as extended loan repayment periods, grace periods, and reduced interest rates are more common. The overall debt relief is measured by the present value of the combined cash flow relief arising out of maturity extensions, interest rate reductions, and grace periods. Sri Lanka must use the breathing space provided by this debt relief to rebuild its fiscal buffers, foreign exchange reserves, and export capacity, in a manner that once debt service obligations increase, they can be met with limited impact on the economy.

Misunderstandings about these processes have led to unrealistic expectations and blame directed at the Sri Lankan government for not securing debt write-offs from official creditors as well. Some political figures claim that they could negotiate with creditor countries to cut 50% of the initial loan amount if they come to power. However, such actions require mutual agreement and an understanding of international economic systems. Creditors will not simply comply with demands for write-offs if it is not a requirement under the IMF's Debt Sustainability Assessment (DSA).

Neither the creditor nor the borrower has the authority to make the final decision on the extent of debt restructuring. The International Monetary Fund (IMF) determines what kind of restructuring plan is necessary to make a country's debt sustainable, based on an independent assessment of the economic strength of each country. The IMF had warned Sri Lanka long before the 2022 crisis that the country's debt was unsustainable.

Some have claimed that the IMF EFF agreement provided for grace periods until 2033 whereas Sri Lanka agreed to grace periods only upto 2028. In reality, the IMF does not mandate or even provide guidance on the restructuring mechanisms such as grace periods, maturity extensions, and so on. The IMF sets the debt relief targets and assesses whether the agreed restructuring can achieve those targets. The failure to grasp this betrays a lack of understanding of the international sovereign debt resolution architecture.

Some claim that Sri Lanka's debt restructuring has been slower than other countries facing a similar situation. For instance, it is said that Argentina and Ecuador, which commenced debt restructuring in early 2020, completed their restructuring in under a year. However, in reality both countries only concluded their bond holder restructuring within a year. In both cases it took almost 3 years to conclude debt restructuring with their official creditors – Argentina reached agreement with the Paris Club in October 2022 and Ecuador reached agreement with Chinese lenders in September 2022. Sri Lanka's comprehensive debt restructuring including domestic debt, official debt, bondholders and other commercial debt, remains one of the fastest thus far amongst comparable middle income country restructurings in recent years.

LEGISLATIVE MEASURES & ECONOMIC TRANSFORMATION

In addition to institutional reforms, Sri Lanka is enacting legislative measures to support export growth and FDI. The Economic Transformation Bill, currently in Parliament, aims to establish key institutions such as:

- **The Economic Commission of Sri Lanka:**
Responsible for promoting and facilitating FDI.

- **The Office for International Trade:**
Focused on negotiating strategic free trade agreements to boost exports and FDI.

- **The Productivity Commission and:**
Enhancing productivity.

- **Agency for Investment Zones (Zone SL):**
Creating investment-friendly environments.

- **Sri Lanka Institute of Economics and International Trade:** a platform for research and policy-making in economics, international finance, and trade, focusing on advanced studies and effective trade integration policies.

The government is also putting together the legislative and institutional framework to lock in the positive reforms that have taken place over the last two years. The Public Finance Management Bill will create a legal framework for fiscal discipline. The Public Debt Management Act will create an institutional and legislative structure for professional management of the country's debt to ensure that debt does not slip back into unsustainable levels in the future. The Central Bank Act provides for a legal and institutional framework to enable inflation targeting, thereby preventing a repeat of the disastrous 70% inflation in 2022. The revisions to the Banking Act provide for the financial stability required to support economic recovery and growth going forward.

Sri Lanka has made remarkable progress since the depths of its economic crisis in 2022. The successful finalization of debt restructuring agreements with major bilateral creditors and initial agreement with international bondholders mark a significant milestone in the country's recovery journey. These agreements provide much-needed fiscal relief, enabling the government to focus on crucial social and economic development projects.

Contrary to misinformation, Sri Lanka's total foreign debt is USD 37 billion, not USD 71 billion. Furthermore, the claim that the country has borrowed up to USD 100 billion in the last two years is entirely false, given that Sri Lanka has not secured any new loans since declaring default. In fact, by 2022, our expenditure on debt payments denominated in foreign currency amounted to 9.2% of GDP. This is projected to be reduced to 4.5% between 2027 and 2032 due to the debt restructuring agreements. Similarly, 34.6% of GDP was allocated for gross financial needs by 2022, and this is expected to be maintained at less than 13% between 2027 and 2032 due to the restructuring agreements. This strategic adjustment will enable greater funding allocation to government services and potential reductions in domestic interest rates.

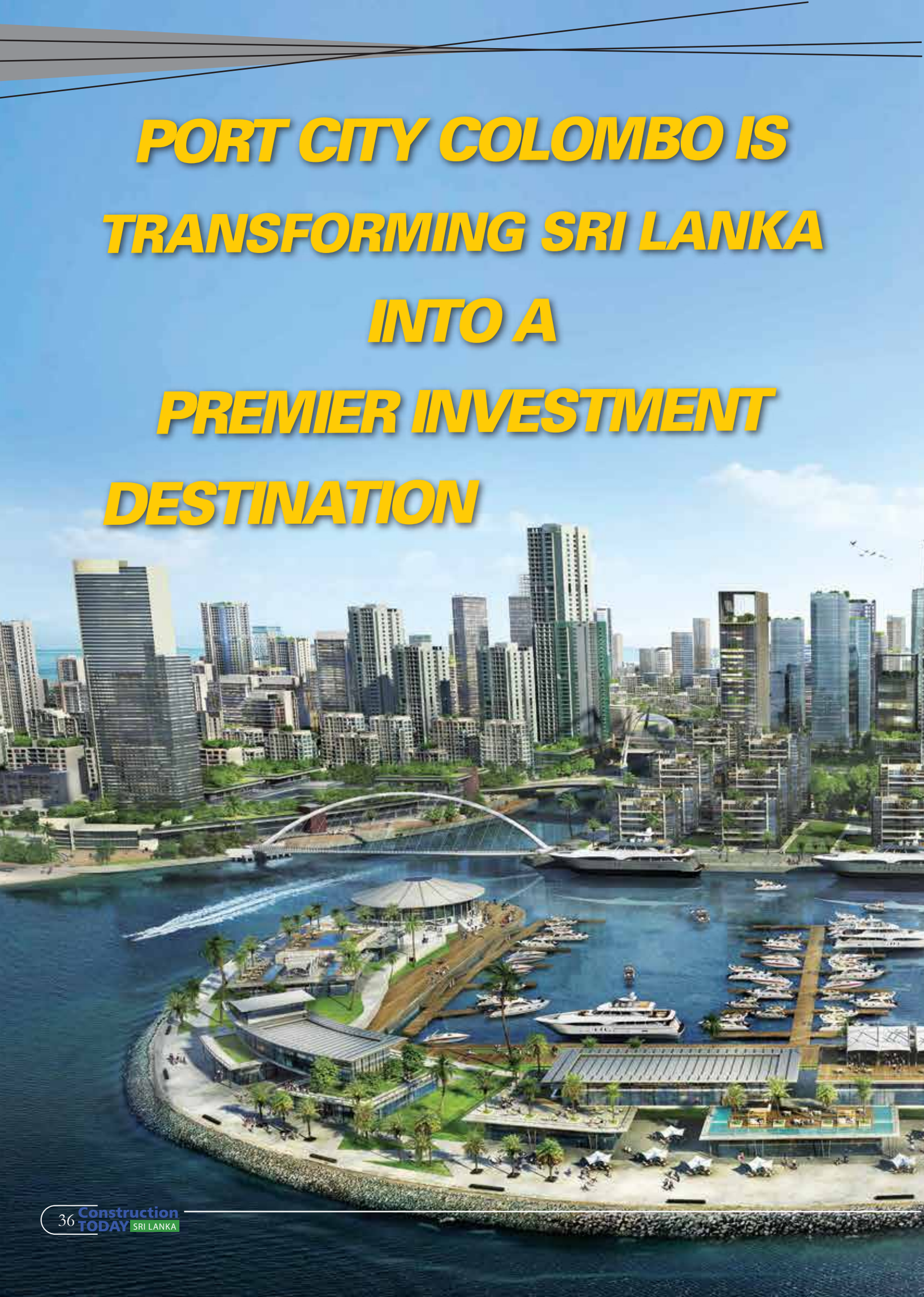
The journey ahead is challenging, but with continued commitment to evidence-based policies and reforms, Sri Lanka is poised for a sustained economic recovery and transformation. The collaborative efforts of international stakeholders and the dedication of the Sri Lankan government will be instrumental in realizing this vision, paving the way for a brighter economic future.

The Editor

36 WAYS TO IMPROVE YOURSELF

1. MEDITATE
2. SET GOALS
3. READ DAILY
4. JUDGE LESS
5. EAT HEALTH
6. LOVE YOURSELF
7. WAKE P EARLY
8. START A JOURNAL
9. QUIT BAD HABITS
10. ASK FOR FEEDBACK
11. LEARN A NEW SKILL
12. BELIEVE IN YOURSELF
13. START A NEW ROUTINE
14. PLAN A NEW STRATEGY
15. LEARN HOW TO INVEST
16. DON'T MAKE EXCUSES
17. STOP PROCRASTINATING
18. REVIEW YOUR FINANCES
19. FOCUS ON THE POSITIVE
20. CHANGE YOU ATTITUDE
21. LEARN A NEW LANGUAGE
22. QUESTION YOUR PURPOSE
23. FOCUS ONE THING AT A TIME
24. DON'T COMPARE YOUSELF
25. AUTOMATE & DELEGATE
26. ACKNOWLEDGE YOUR FLAWS
27. IDENTIFY YOUR BLIND FLAWS
28. LEAVE YOUR COMFORT ZONE
29. CHANGE YOUR SOCIAL CIRCLE
30. SEE FAILURE AS OPPORTUNITY
31. FOLLOW AN EXERCISE ROUTINE
32. MAKE A BUSINESS BUCKET LIST
33. START BEING MORE ORGANIZED
34. QUIT THINGS THAT AINT WORKING
35. WRITE A LETTER TO YOUR FUTURE SELF
36. WATCH EDUCARIONL VIDEOS

PORT CITY COLOMBO IS TRANSFORMING SRI LANKA INTO A PREMIER INVESTMENT DESTINATION



Port City Colombo represents one of the most ambitious and transformative Public-Private partnerships in South Asia. Situated adjacent to the Port of Colombo, and the heart of Sri Lanka's commercial capital, Colombo, Port City Colombo is a visionary master-planned city development that is ripe for investment. The project is also designed to be one of the most sustainable and liveable cities in the region.

Sri Lanka's geographical position, at the epicentre of the Indian Ocean's East-West trade routes, also makes it a natural logistics hub. It provides proximity to key markets, including India, the Middle East, and Asia-Pacific. Meanwhile, Sri Lanka's economy is projected to grow 3.1% by 2027, according to its Central Bank. This, together with its booming services sector and skilled talent pool, make the project among the region's most promising destinations for foreign direct investments and doing business.

The Port City Colombo project is located within the Colombo Port City Special Economic Zone (SEZ), which is a multi-service SEZ designed to provide unparalleled ease of doing business. Governed by the Colombo Port City Economic Commission, Port City Colombo ensures a business-friendly environment with streamlined governance, dispute resolution, and law enforcement. The economically ring-fenced jurisdiction allows transactions in 16 designated foreign currencies, with no capital or exchange controls, fostering an environment conducive to international trade and investment. At the heart of Port City Colombo's economic vision lies the Colombo International Finance Centre (CIFC), aiming to emulate the success of global financial hubs like Dubai and Singapore.

The Primary and Secondary Businesses of Strategic Importance (BSI) framework is also highly attractive. This scheme can provide businesses with attractive fiscal and non-fiscal incentives, depending on their investment scope and/or value creation plans.

Sri Lanka's national universities produce over 40,000 graduates annually, reinforcing a highly-skilled, low-cost talent pool. This makes it an attractive destination for diverse industries, particularly IT/BPM, finance, and real estate development. A start-up-friendly environment, and the presence of multinational IT companies offering incubator programmes and graduate upskilling services further enhances the potential for innovation and growth.

Meanwhile, tourism is booming in Sri Lanka and Port City Colombo allocates 40% of its Gross Floor Area to the hospitality sector, with plans for high-capacity international hotel and resort spaces. The sector is projected to grow at 7.5% (CAGR) through 2029, with projected foreign exchange earnings of $5 billion by 2025, making the project ideal for investments into hospitality and real estate.

Port City Colombo represents a transformative and lucrative opportunity for global investors looking to capitalise on emerging opportunities in South Asia and neighbouring regions. It thus stands as the "Gateway to South Asia", welcoming investors from around the world to a future of unparalleled potential and prosperity.

Learn more by visiting https://www.portcitycolombo.lk/

ELECTRICITY TARIFF REDUCTION ALLOWS SRI LANKAN MATERIAL MANUFACTURERS TO REDUCE PRICES

Dr. Rohan Karunaratne.

B.E (India) T.Eng.(CEI) MIE(Lon.)
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Export Development Board- Advisor
Ceylon Institute of Builders-President
Master Builders International-Chairman
Arpico Finance-Chairman
Associated Motor Finance-Chairman
AKK Engineers (Pvt) Ltd-Chairman
Hybrid Airports (Pvt) Ltd-Chairman
Overseas Training Academy-Chairman
Human Resource Development (Pvt) Ltd-Chairman
Hatton National Bank PLC-Director
Sino Lanka Hotels & Spa-Director
Helanko Hotels & spa (Pvt) Ltd-Director
Pinthaliya Resorts & Spa -Chairman

During the last few years, construction material cost has risen by about 300%. Due to this, Sri Lankan Construction Cost has gone up drastically. This pose a very unhealthy risk for the Construction Industry with many projects being halted, with no one wanting to restart projects. Even after the country's economy settled, material cost has still remained high.

Now, with the recent announcement by the Public Utilities Commission of Sri Lanka who approved a electricity tariff reduction of 25.3% for industries and an overall reduction of 22.49%, the local manufacturers can pass this benefit to the Industry.

Locally manufactured materials being high have left many developers and big-time contractors to depend on important materials. Therefore, we believe that the ball is their court, for manufacturers who shall benefit from reducing their prices, increasing sales and widening their market reach.

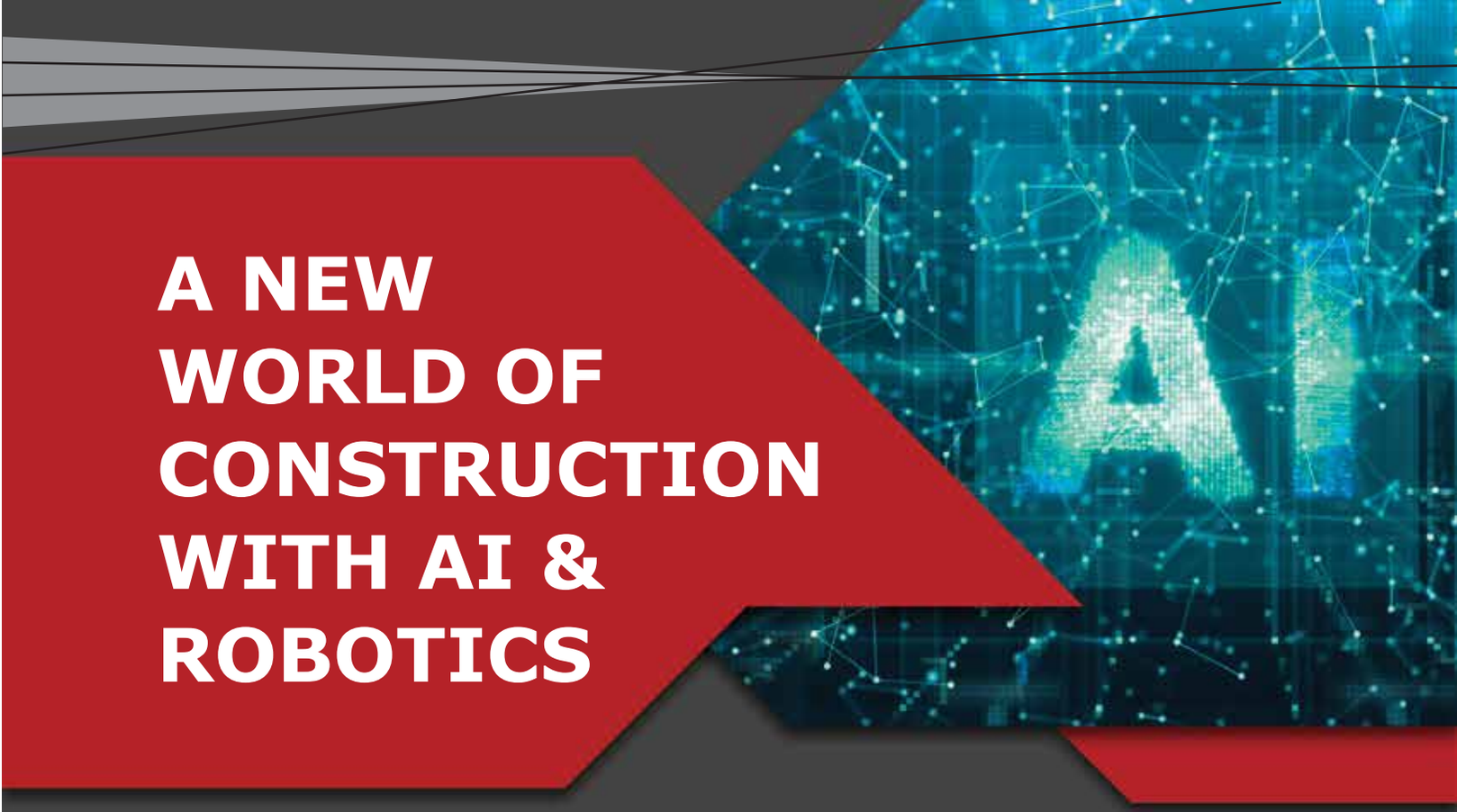
Industries like Steel, Cement, Tiles, Bathroom Fittings, Paints, PVC, Roofing etc. have the esteemed responsibility of reducing their prices, which can help bring semi-luxury construction cost to 15-16,000 sq.ft & luxury to 20,000 sq.ft. Thus, Sri Lanka can be in par with our neighboring countries and attract FDIs.

ADB SUPPORT

The Asian Development Bank (ADB) has recently approved a $100 million loan to support the power sector in Sri Lanka. This program shall aid power sector reforms under the Electricity Act. ADB will provide an additional $1 million technical assistance grant to support program implementation, capacity building of electricity companies, development of their business plans and overall development plans.

This gives further hope for manufacturers for price reduction, and subsequently the advancement of Sri Lankan Construction Industry as a whole.

A NEW WORLD OF CONSTRUCTION WITH AI & ROBOTICS



A new age of construction is here, involving things that sound straight out of a sci-fi movie. With construction workers used to 'doing it all,' using robots or AI during the preconstruction planning process or on-site may feel unnatural.

Where you may need AI- assistance:

- Planning and organizing
- The back-breaking labor that comes with building

If you're still unsure, just look at the parts of our industry that have already embraced this new technology.

A few examples are:

- Robotic heat welders
- Remote-controlled demolition robots
- Use of AI in modular and prefab construction

Think of AI and robotics as a partnership or a support beam that takes stress off your human workers. So, what's the present and future of AI and robotics in construction? If you're considering using robotics or AI in your own workflows, here are some resources to get you started.

ROBOTICS IN CONSTRUCTION – WORKING SMARTER, NOT HARDER.

Robots are being used to make work on the construction site faster, safer, and easier. The Construction Record Podcast™ looks at the current role of robotics in the construction industry, the latest innovations, and how using robots on job sites is helping both new and experienced workers.

Some recent episodes on this topic included information about:

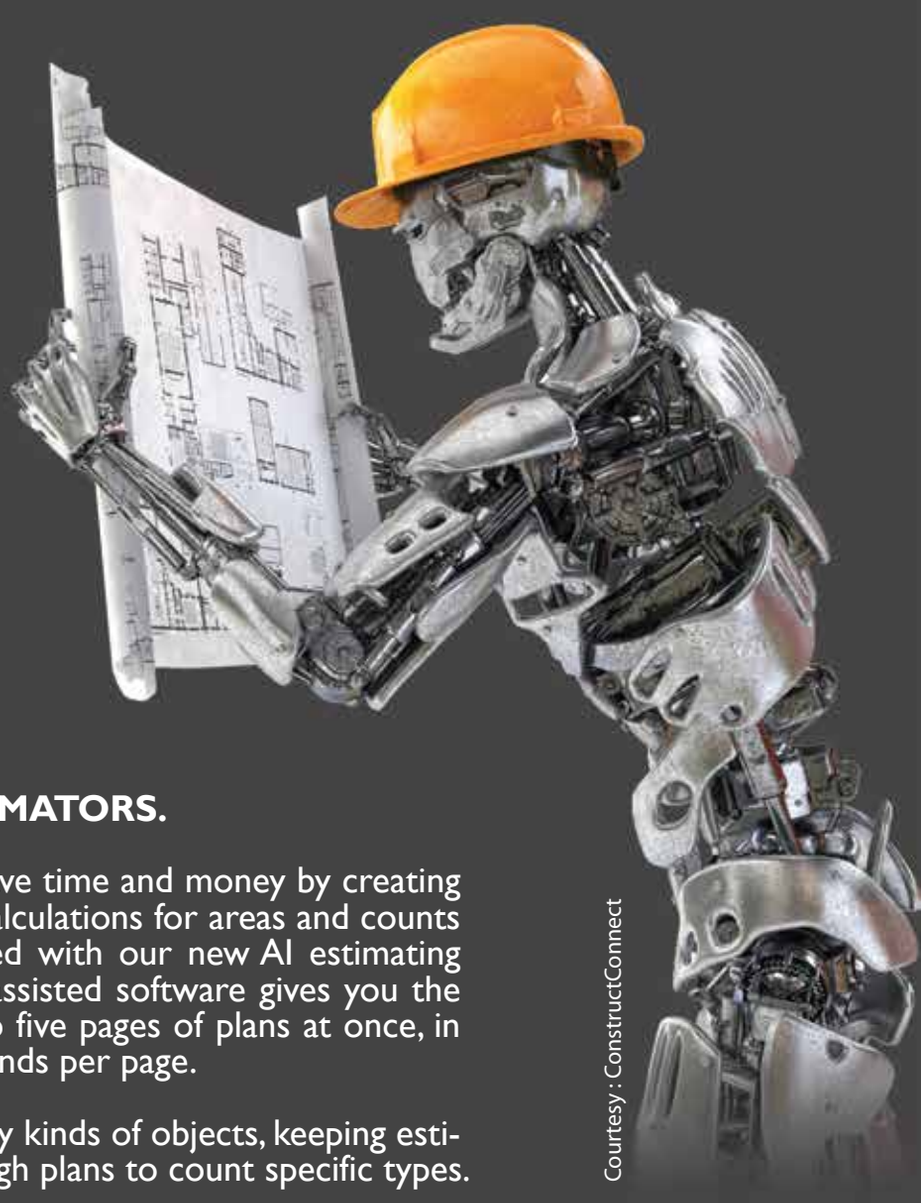
- New innovations, such as Hilti's JaiBot drilling robot.
- Drawing in younger workers and allowing older workers to work in new ways.

AI, ROBOTICS, & THE LABOR CRISIS.

Finding qualified construction workers is an ongoing problem. How big? A recent AGC (Associated General Contractors) workforce survey shows that "88% of construction firms are having a hard time finding workers to hire." You can point your finger at several reasons for the shortage including a lack of new skilled workers and veteran workers nearing retirement. More companies are turning to technology to help fill the gaps, streamline workflows, and maximize productivity. You may or may not have already come across new robotic technologies used on job sites to make life easier for workers.

Here are a few examples:

- Layouts and measurement tasks
- Demolition
- Jobsites monitoring

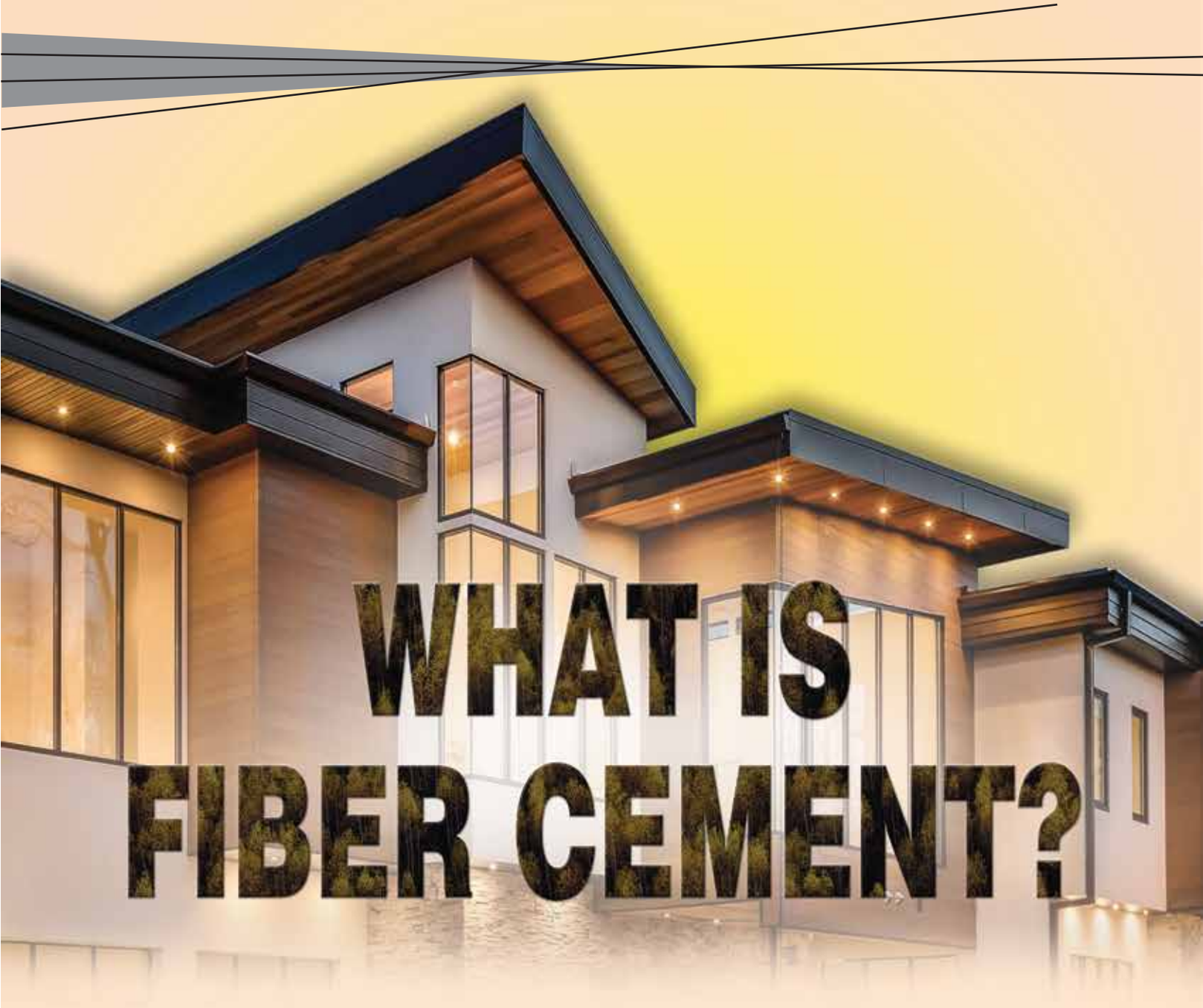


Courtesy : ConstructConnect

AI FOR ESRIMATORS.

ConstructConnect can help you save time and money by creating fast, accurate measurements and calculations for areas and counts with On-Screen Takeoff® combined with our new AI estimating assistant, Takeoff Boost™. This AI-assisted software gives you the gift of time back by counting up to five pages of plans at once, in less than 30 seconds per page.

Boost can automate counts of many kinds of objects, keeping estimators from having to comb through plans to count specific types.



WHAT IS FIBER CEMENT?

Many homeowners feel at a loss as to what questions to ask of retailers, designers and builders when it comes to the best siding options. You may have heard that among exterior siding options, fiber cement is one of the best. But what is fiber cement?

Fiber cement is a composite building material that is made of cement reinforced with cellulose fibers. Manufactured in sheet form, fiber cement is easier to install than other siding materials. It is used for many different siding styles as it can create a wood siding, clapboard siding or shingle, along with designs that look like brick or stone.

That fiber cement offers low maintenance and a long lifespan is well established.

Fiber cement exterior siding panels are easier and cleaner to install over other architectural cement choices. As it can be ordered in either factory pre-cut sizes or cut to custom specifications, on-site cutting is minimal. To make it even easier, Nichiha has a simplified installation process due to their Ultimate Starter Track and Ultimate Clip System. It also doesn't require specialized installers, like some other sidings.

This clip system and starter track create a rainscreen that provides drainage and ventilation. It significantly reduces the risk of water damage and mold, too. (Learn more about Nichiha's hardware and accessories here.)

WHAT ARE THE BENEFITS OF FIBER CEMENT?

Fiber cement has many benefits to homeowners, putting it as a top choice for siding options. Let's look at the top four benefits you get when you choose fiber cement.

1 FIRE RESISTANT

Nichiha's fiber cement cladding is fire resistant, giving homeowners in dry regions across the west coast peace of mind when it comes to wildfires. That's why we have ensured our siding meets even the most stringent fire testing requirements in the US including California's Office of the State Fire Marshal (SFM) CA SFM 12.7A-1 regulations. This is a test designed to determine the performance of exterior walls when directly exposed to fire. Nichiha cladding qualifies as a Class A building material as its qualities offer uncompromised fire resistance and is in line with NFPA's Firewise USA© program. With a flame spread index of zero, fiber cement siding doesn't easily ignite or spread flames. Don't believe us? Read about one incredible, real-life example here.

2 WIND RESILIENCE

In coastal regions, strong wind damage, sun exposure and salt spray is a concern for homeowners. Fiber cement offers "hurricane-resilience" as it can withstand up to 130 mph or higher winds.

Nichiha fiber cement meets wind load code requirements in many coastal regions across the USA, including Miami-Dade wind load codes.

To learn more about Nichiha's fiber cement wind-resilience, click here.

3 HUMIDITY RESISTANCE

Homeowners along southern, humid climates are concerned about damage caused by humidity, including mold and rot. Fiber cement can withstand high humidity without rotting or warping. This makes it a better alternative to other siding materials as it doesn't allow pests to infest the exterior of the house.

4 TEMPERATURE RESISTANCE

Homeowners in northern climates, where temperatures vary significantly, can rest easy when they choose fiber cement siding for their homes. Traditional architectural concrete is susceptible to temperature cycles that create cracking damage due to freezing and expansion. Fiber cement is temperature cycle durable, meaning it won't crack, warp or otherwise damage during extreme temperature fluctuations.

Courtesy: nichiha.com/blog

BUILDING A SUSTAINABLE FUTURE:

EMPOWERING COMMUNITIES THROUGH SUSTAINABLE CONSTRUCTION.

By - Shanika Gamage

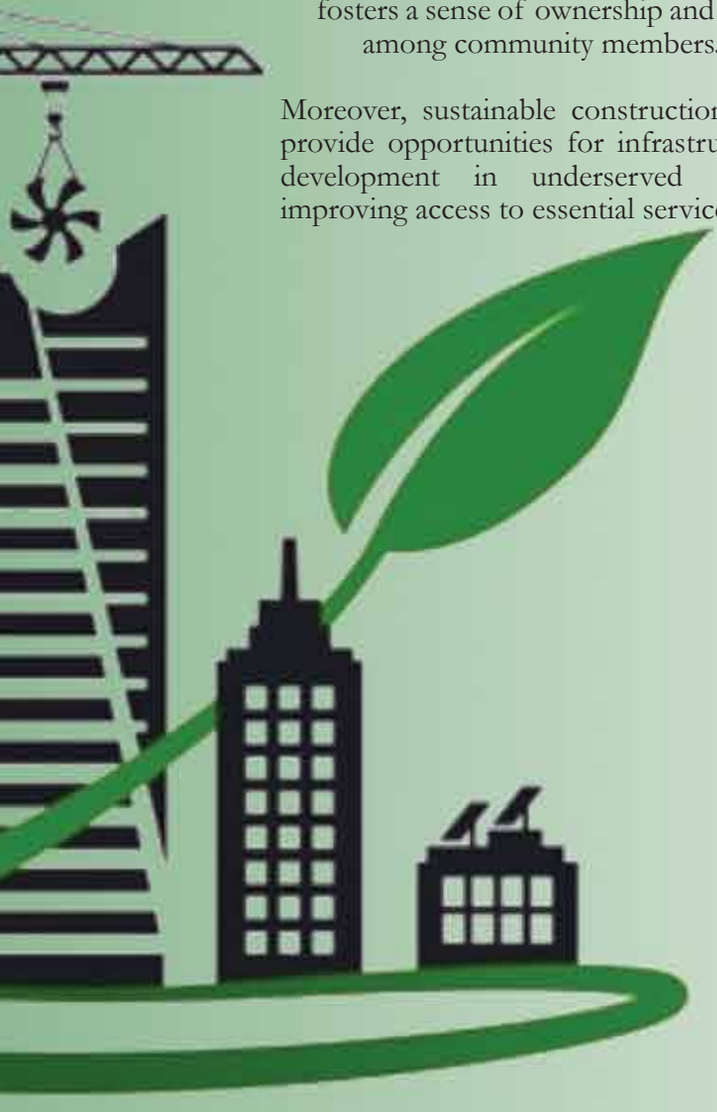
"We do not inherit the earth from our ancestors, we borrow it from our children."- Native American Proverb

Sustainable construction goes beyond environmental considerations; it encompasses social dimensions that are equally crucial for fostering inclusive growth and empowering communities. In this article, we delve into how the construction industry can contribute to community development, create employment opportunities, and ensure inclusive growth while meeting environmental sustainability targets.

COMMUNITY DEVELOPMENT

Sustainable construction projects have the potential to catalyze community development by addressing local needs and priorities. By engaging with community members and stakeholders throughout the project lifecycle, developers can ensure that their initiatives align with the aspirations and concerns of the people they serve. This participatory approach not only enhances the social value of construction projects but also fosters a sense of ownership and pride among community members.

Moreover, sustainable construction can provide opportunities for infrastructure development in underserved areas, improving access to essential services such as housing, education, healthcare, and transportation. By investing in resilient and inclusive infrastructure, construction projects can contribute to the overall well-being and resilience of communities, particularly those vulnerable to environmental risks and socio-economic disparities.



CREATING JOBS

One of the most significant social benefits of sustainable construction is its potential to create employment opportunities, especially in areas with high rates of unemployment or underemployment. Green building projects require a diverse range of skills, from architects and engineers to construction workers and tradespeople. By prioritizing local hiring and workforce development initiatives, construction companies can ensure that job opportunities are accessible to community members, including women, youth, and marginalized groups.

Furthermore, sustainable construction practices often involve labor-intensive techniques such as passive design, natural ventilation, and green roofing, which can generate additional employment in the construction sector. Investing in training and capacity-building programs for local workers not only enhances their employability but also strengthens the social fabric of communities by fostering skill development and economic empowerment.

INCLUSIVE GROWTH

Inclusive growth is essential for ensuring that the benefits of economic development are shared equitably among all segments of society. Sustainable construction can contribute to inclusive growth by promoting social equity, fostering local

entrepreneurship, and creating opportunities for small and medium-sized enterprises (SMEs). By engaging with local suppliers and businesses, construction projects can stimulate economic activity and support the growth of the informal sector. Furthermore, sustainable construction practices such as energy efficiency, waste reduction, and water conservation can result in long-term cost savings for building owners and occupants, thereby reducing the financial burden on low-income households. Affordable and energy-efficient housing, in particular, can improve housing affordability and quality of life for vulnerable populations, contributing to social inclusion and poverty alleviation.

MEETING ENVIRONMENTAL SUSTAINABILITY TARGETS

While the social dimensions of sustainable construction are critical, it is essential to recognize that environmental sustainability remains a core objective of sustainable development. Green building practices, such as energy-efficient design, renewable energy integration, and sustainable materials use, are essential for mitigating the environmental impact of construction activities and reducing carbon emissions.

By adopting green building standards and certifications, such as LEED and BREEAM, construction projects can demonstrate their commitment to environmental stewardship while also maximizing their social impact. These certifications provide a framework for evaluating and improving the environmental performance of buildings, ensuring that they meet stringent sustainability criteria while also addressing social and economic considerations.

In conclusion, sustainable construction has the potential to empower communities, create jobs, and foster inclusive growth while meeting environmental sustainability targets. By prioritizing community engagement, local hiring, and social equity, construction projects can maximize their positive social impact and contribute to the overall well-being and resilience of communities. As the construction industry continues to evolve, integrating social dimensions into sustainable development strategies will be essential for building a more equitable and sustainable future for all.

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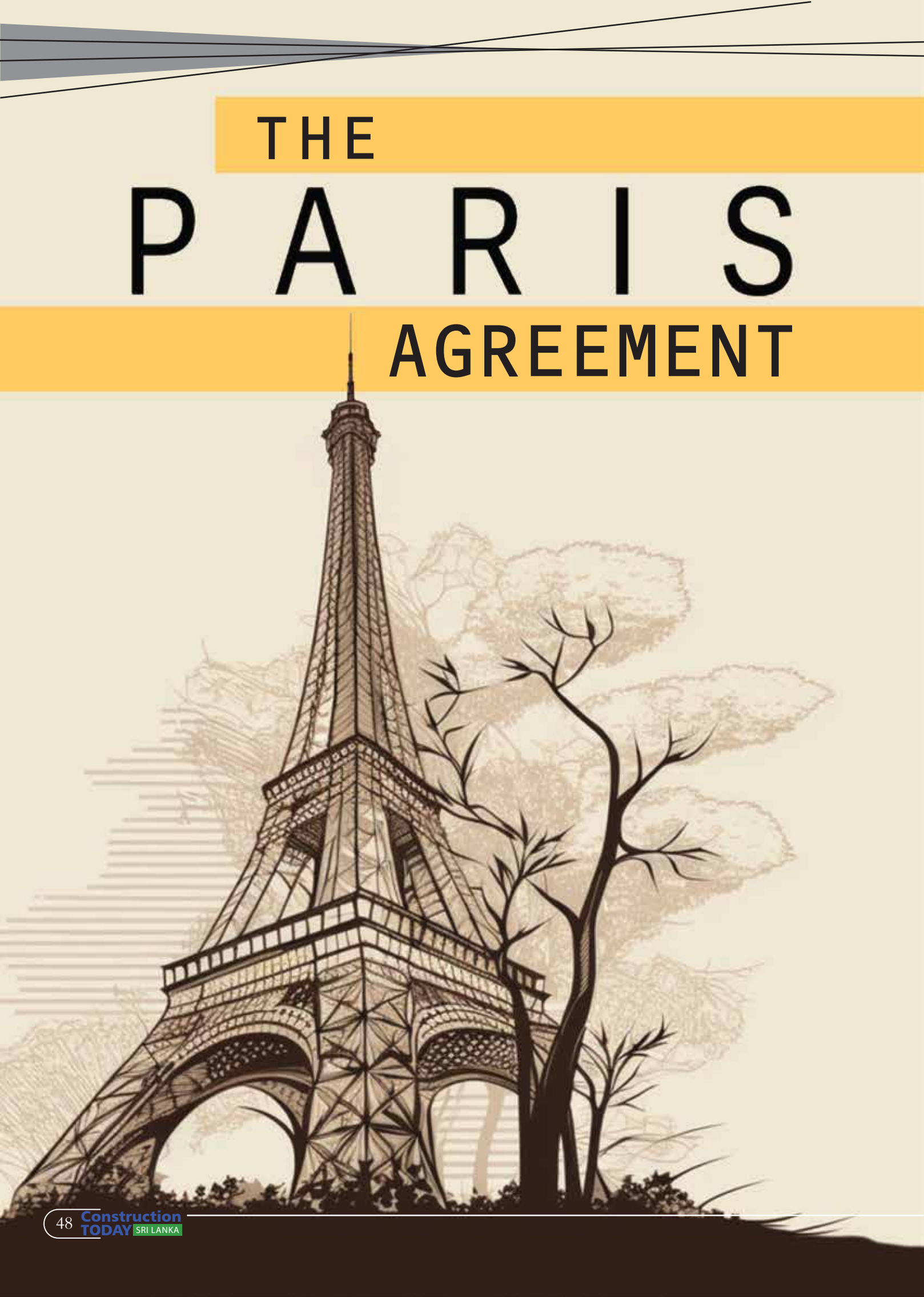
THE PARIS AGREEMENT



WHAT IS THE PARIS AGREEMENT?

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016.

Its overarching goal is to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels."

However, in recent years, world leaders have stressed the need to limit global warming to 1.5°C by the end of this century.

That's because the UN's Intergovernmental Panel on Climate Change indicates that crossing the 1.5°C threshold risks unleashing far more severe climate change impacts, including more frequent and severe droughts, heatwaves and rainfall.

To limit global warming to 1.5°C, greenhouse gas emissions must peak before 2025 at the latest and decline 43% by 2030.

The Paris Agreement is a landmark in the multilateral climate change process because, for the first time, a binding agreement brings all nations together to combat climate change and adapt to its effects.

HOW DOES THE PARIS AGREEMENT WORK?

Implementation of the Paris Agreement requires economic and social transformation, based on the best available science. The Paris Agreement works on a five-year cycle of increasingly ambitious climate action -- or, ratcheting up -- carried out by countries. Since 2020, countries have been submitting their national climate action plans, known as nationally determined contributions (NDCs). Each successive NDC is meant to reflect an increasingly higher degree of ambition compared to the previous version.

Recognizing that accelerated action is required to limit global warming to 1.5°C, the COP27 cover decision requests Parties to revisit and strengthen the 2030 targets in their NDCs to align with the Paris Agreement temperature goal by the end of 2023, taking into account different national circumstances.

NATIONALLY DETERMINED CONTRINUTIONS (NDCs)

In their NDCs, countries communicate actions they will take to reduce their greenhouse gas emissions in order to reach the goals of the Paris Agreement. Countries also communicate in their NDCs actions they will take to build resilience to adapt to the impacts of climate change.

LONG-TERM STRATEGIES

To better frame the efforts towards the long-term goal, the Paris Agreement invites countries to formulate and submit long-term low greenhouse gas emission development strategies (LT-LEDS).

LT-LEDS provide the long-term horizon to the NDCs. Unlike NDCs, they are not mandatory. Nevertheless, they place the NDCs into the context of countries' long-term planning and development priorities, providing a vision and direction for future development.

HOW ARE COUNTRIES SUPPORTING ONE ANOTHER?

The Paris Agreement provides a framework for financial, technical and capacity building support to those countries who need it.

FINANCE

The Paris Agreement reaffirms that developed countries should take the lead in providing financial assistance to countries that are less endowed and more vulnerable, while for the first time also encouraging voluntary contributions by other Parties. Climate finance is needed for mitigation, because large-scale investments are required to significantly reduce emissions. Climate finance is equally important for adaptation, as significant financial resources are needed to adapt to the adverse effects and reduce the impacts of a changing climate.

TECHNOLOGY

The Paris Agreement speaks of the vision of fully realizing technology development and transfer for both improving resilience to climate change and reducing GHG emissions. It establishes a technology framework to provide overarching guidance to the well-functioning Technology Mechanism. The mechanism is accelerating technology development and transfer through its policy and implementation arms.

CAPACITY-BUILDING

Not all developing countries have sufficient capacities to deal with many of the challenges brought by climate change. As a result, the Paris Agreement places great emphasis on climate-related capacity-building for developing countries and requests all developed countries to enhance support for capacity-building actions in developing countries.

HOW ARE WE TRACKING PROGESS?

With the Paris Agreement, countries established an enhanced transparency framework (ETF). Under ETF, starting in 2024, countries will report transparently on actions taken and progress in climate change mitigation, adaptation measures and support provided or received. It also provides for international procedures for the review of the submitted reports.

The information gathered through the ETF will feed into the Global stocktake which will assess the collective progress towards the long-term climate goals.

This will lead to recommendations for countries to set more ambitious plans in the next round.

WHAT HAVE WE ACHIVED SO FAR?

Although climate change action needs to be massively increased to achieve the goals of the Paris Agreement, the years since its entry into force have already sparked low-carbon solutions and new markets. More and more countries, regions, cities and companies are establishing carbon neutrality targets. Zero-carbon solutions are becoming competitive across economic sectors representing 25% of emissions. This trend is most noticeable in the power and transport sectors and has created many new business opportunities for early movers.

By 2030, zero-carbon solutions could be competitive in sectors representing over 70% of global emissions.

Courtesy : unfcc.int

Courtesy : climatesussia & climaterussia.ru

BUILDINGS A SUSTAINABLE FUTURE:

INTEGRATING CIRCULAR ECONOMY PRINCIPLES INTO SRI LANKA'S CONSTRUCTION SECTOR

"The mystery of human existence lies not in just staying alive, but in finding something to live for." - Fyodor Dostoyevsky

By - Shanika Gamage

The construction industry plays a significant role in shaping the built environment and driving economic growth in Sri Lanka. However, rapid urbanization and infrastructure development have also led to increased resource consumption, waste generation, and environmental degradation. In this article, we explore how the construction sector in Sri Lanka can embrace circular economy principles to reduce waste, enhance resource efficiency, and contribute to sustainable development goals.

CIRCULAR ECONOMY: A NEW PARADIGM FOR SUSTAINABLE DEVEIOPMENT

The concept of a circular economy challenges the traditional linear model of 'take-make-dispose' by promoting the reuse, recycling, and repurposing of materials and resources throughout their lifecycle. Instead of viewing waste as a byproduct of economic activity, the circular economy seeks to create value from materials and products, thereby minimizing resource depletion and environmental pollution.

In the context of the construction sector, embracing circular economy principles involves adopting strategies to design out waste, maximize resource efficiency, and promote the reuse and recycling of materials. By closing the loop on material flows and minimizing the extraction of virgin resources, the construction industry can significantly reduce its environmental footprint and contribute to sustainable development goals such as climate action, resource efficiency, and waste management.

CHALLENGES & OPPORTUNITIES IN SRI LANKA'S CONSTRUCTION SECTOR

Sri Lanka's construction sector is experiencing rapid growth, driven by investments in infrastructure development, real estate, and tourism. While this growth presents significant opportunities for economic development, it also poses challenges in terms of resource depletion, waste generation, and environmental degradation.

One of the key challenges facing the construction industry in Sri Lanka is the limited availability of raw materials and the high cost of imports. By adopting circular economy principles, construction companies can reduce their reliance on virgin resources and explore alternative sources of materials, such as recycled aggregates, reclaimed wood, and industrial byproducts.

Furthermore, the construction sector in Sri Lanka faces significant waste management challenges, with construction and demolition waste accounting for a large proportion of the country's total waste generation. By implementing strategies to reduce, reuse, and recycle construction waste, the industry can not only minimize its environmental impact but also create new business opportunities in waste management and recycling.

INTEGRATING CIRCULAR ECONOMY PRINCIPLES: STRATEGIES FOR SRI LANKA'S CONSTRUCTION SECTOR

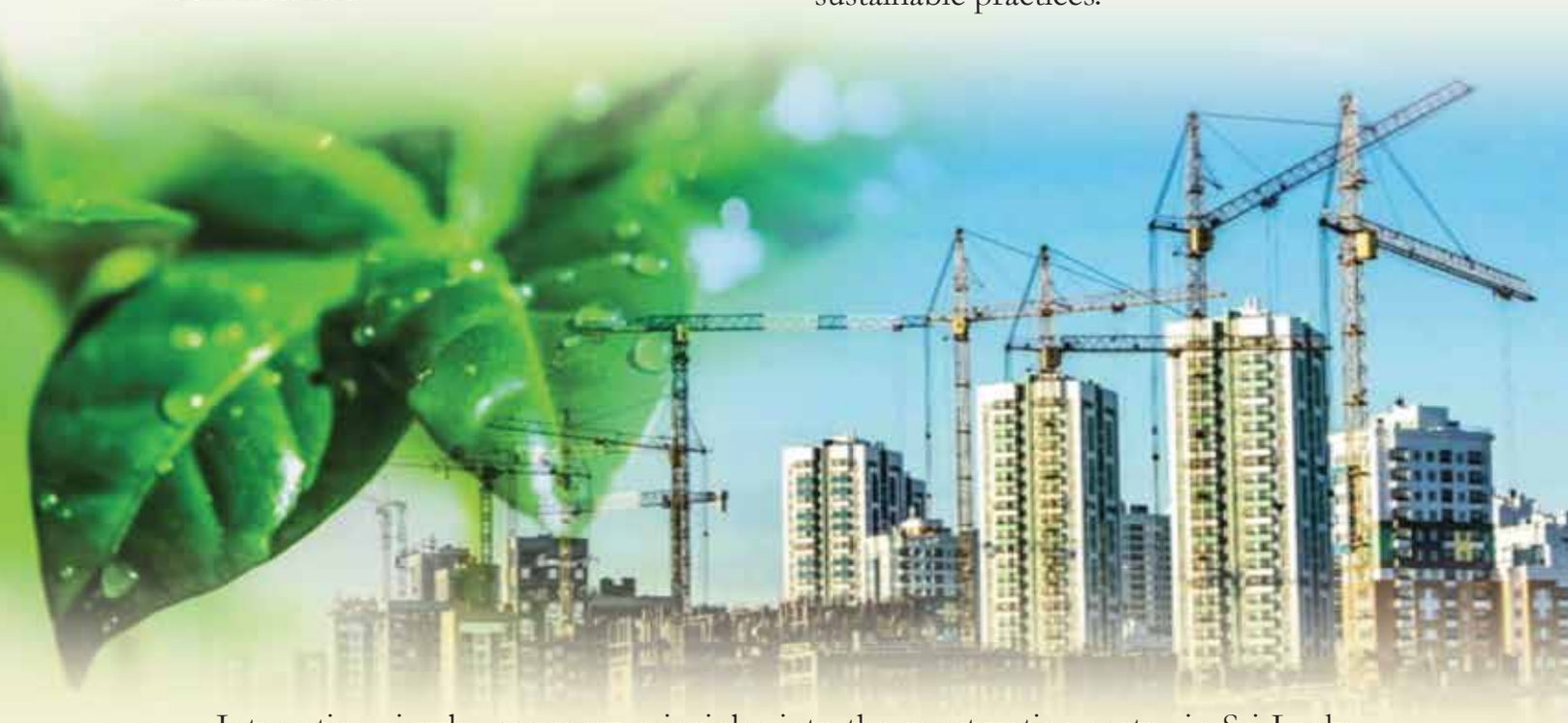
To integrate circular economy principles into the construction sector in Sri Lanka, several strategies can be considered:

1. Design for Disassembly and Reuse: Adopting modular construction techniques and designing buildings for disassembly can facilitate the reuse and recycling of materials at the end of their lifecycle. By considering the future reuse potential of materials and components during the design phase, architects and engineers can minimize waste and maximize resource efficiency.

2. Material Recycling and Recovery: Implementing systems for the collection, sorting, and recycling of construction and demolition waste can help recover valuable materials such as concrete, brick, and metal for reuse in new construction projects. Investing in recycling infrastructure and partnering with local recycling facilities can create a closed-loop system for construction materials.

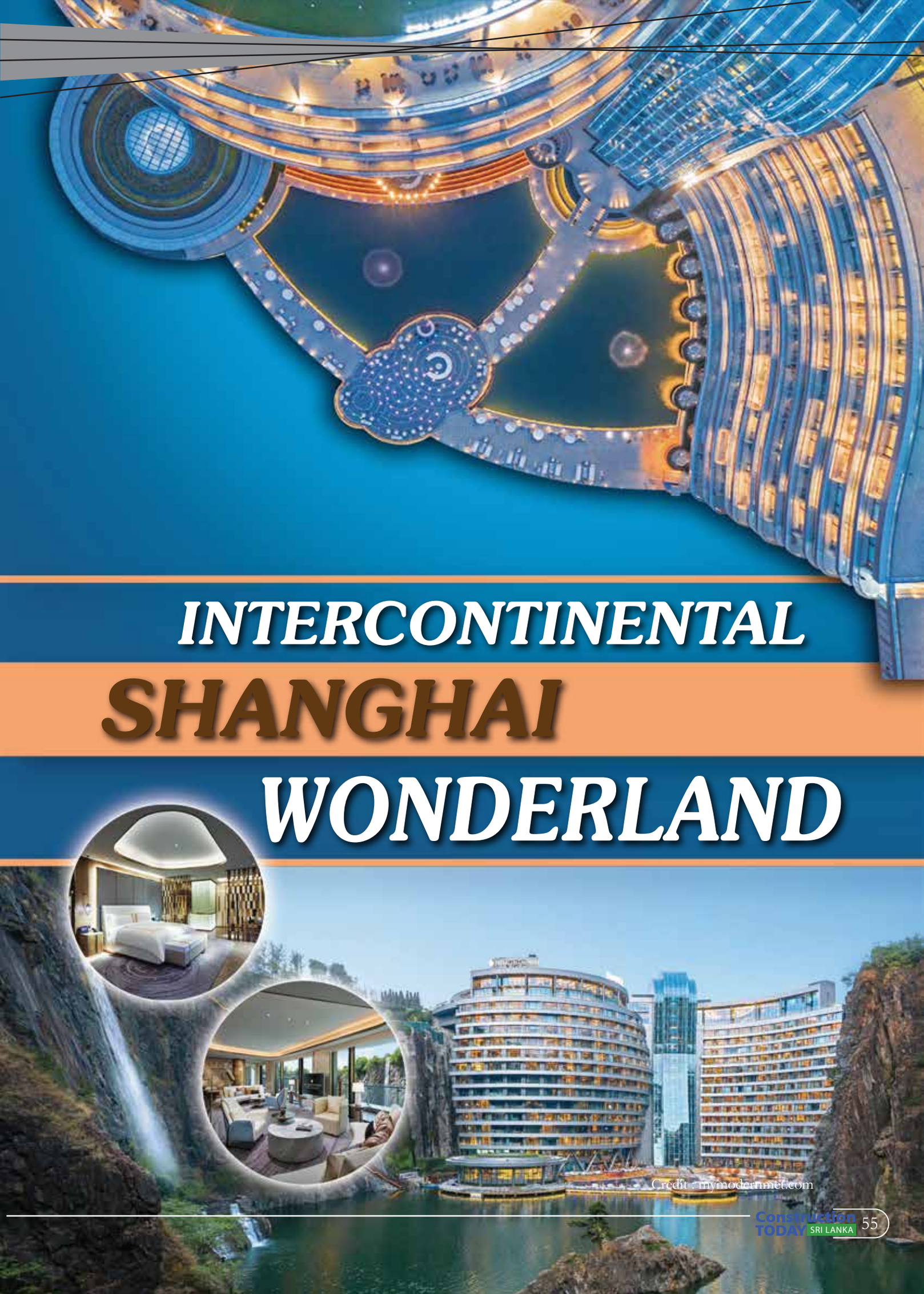
3. Resource Efficiency and Optimization: Embracing resource-efficient construction practices, such as energy-efficient design, water conservation, and green building materials, can reduce the environmental impact of construction activities while also lowering operating costs for building owners. By prioritizing resource efficiency throughout the project lifecycle, construction companies can minimize waste and maximize the value of their investments.

4. Collaboration and Knowledge Sharing: Building partnerships between government agencies, industry associations, academic institutions, and civil society organizations can facilitate knowledge sharing and capacity building on circular economy principles in the construction sector. By collaborating on research, training, and policy development, stakeholders can work together to overcome barriers and promote the widespread adoption of sustainable practices.



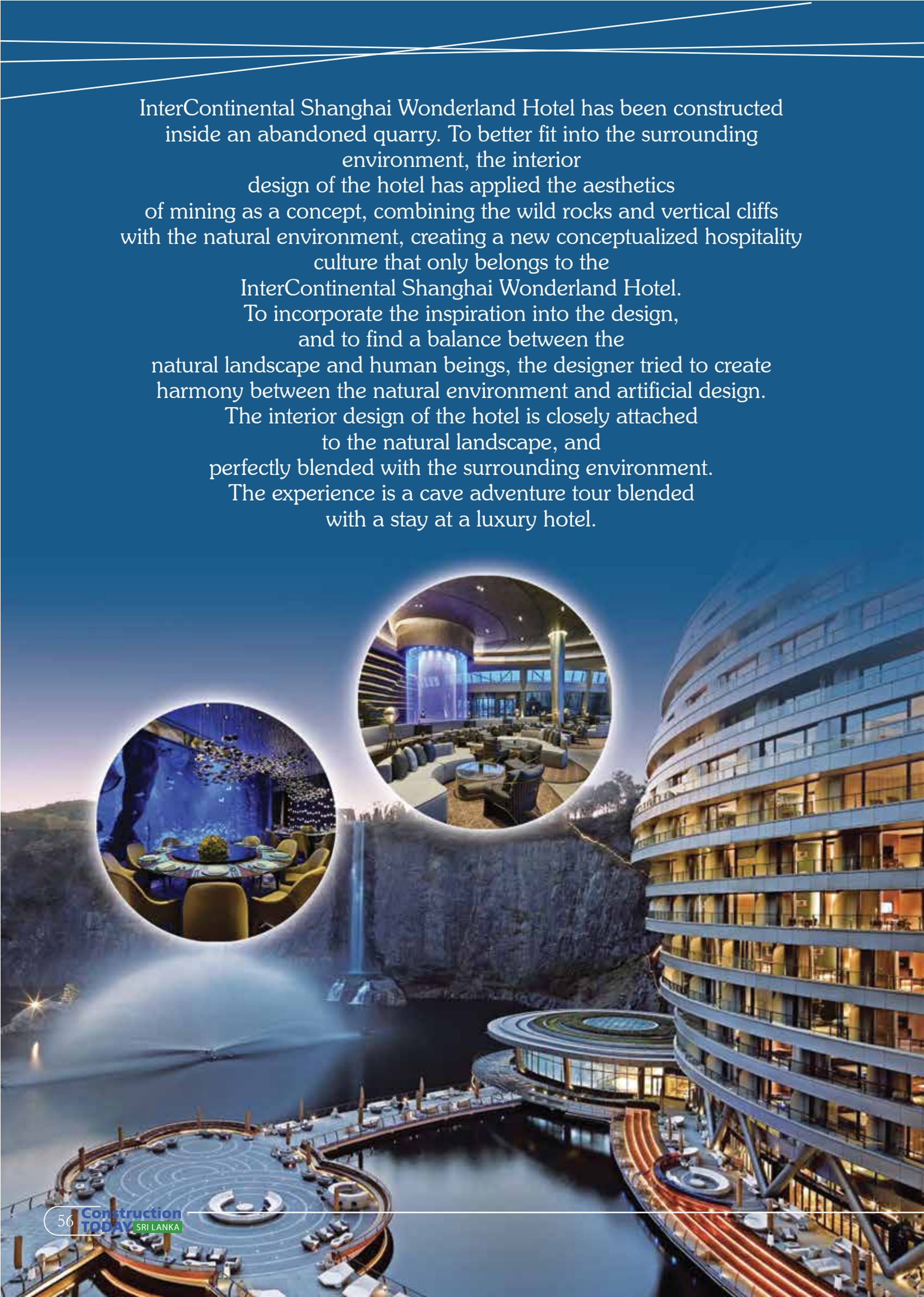
Integrating circular economy principles into the construction sector in Sri Lanka offers a pathway to sustainable development by reducing waste, enhancing resource efficiency, and creating new opportunities for economic growth. By embracing strategies such as design for disassembly, material recycling, resource optimization, and collaboration, the construction industry can transition towards a more circular and resilient built environment that meets the needs of present and future generations. As Sri Lanka continues to urbanize and develop, adopting circular economy principles will be essential for building a sustainable future for all.

INTERCONTINENTAL SHANGHAI WONDERLAND



Credit : mymodernmet.com

InterContinental Shanghai Wonderland Hotel has been constructed inside an abandoned quarry. To better fit into the surrounding environment, the interior design of the hotel has applied the aesthetics of mining as a concept, combining the wild rocks and vertical cliffs with the natural environment, creating a new conceptualized hospitality culture that only belongs to the InterContinental Shanghai Wonderland Hotel. To incorporate the inspiration into the design, and to find a balance between the natural landscape and human beings, the designer tried to create harmony between the natural environment and artificial design. The interior design of the hotel is closely attached to the natural landscape, and perfectly blended with the surrounding environment. The experience is a cave adventure tour blended with a stay at a luxury hotel.



Courtesy : Cheng Chung Design Practice, Shanghai, china

Roads to Highways

Roads make a crucial contribution to economic development and growth and bring important social benefits. They are of vital importance in order to make a nation grow and develop. In addition, providing access to employment, social, health and education services makes a road network crucial in fighting against poverty. Roads open up more areas and stimulate economic and social development. For those reasons, road infrastructure is the most important of all public assets. Due to use and time, road infrastructure is becoming aged. And what looks acceptable on the surface can be hiding significant problem just below. As a result, it requires maintenance, renewal and modernization. When it comes to modernization, building highways are vital to a country's development. By linking producers to markets, workers to jobs, students to school, and the sick to hospitals, roads are vital to any development agenda. However, while roads bring economic and social benefits, they can also come with social costs such as pollution or deforestation. The difference between a road and highway is that a road is a way used for travelling between places, usually surfaced with asphalt or concrete modern roads, both rural and urban,are designed to accommodate many vehicles travelling in both directions while highway is a main, direct public road, especially a multi-lane, high speed and connecting major cities. The word highway goes back to the elevated Roman roads that had a mound or hill formed by earth from the side ditches thrown toward the centre, thus high way. Highway construction requires a lot of energy at different levels:for the production of asphalt and cement destined topavements and excavating materials, for road maintenance, and by vehicles stuck in congestion due to poorly designed highways. All freeways are highways, but not every highway is a freeway. A freeway is a "controlled access"highway also known as an express highway. That's designed exclusively for high speed vehicular traffic. Traffic across a freeway is carried by overpasses and underpasses. Highways can relatively reduce travel time to villages, cities and towns thereby encourage people to travel for business and trade. Highways make journeys faster, comfortable and safer than usual while at the same time reduce fuel consumption.

Key facts about roads:

The 21st century is seeing an unprecedented expansion of roads
At least 25 million kilometers of new roads are expected worldwide by 2050 - enough to circle the Earth over 600 times
90% of all road construction is occurring in developing nations, including many regions with exceptional biodiversity and vital ecosystem services
Roads penetrating into Earth's remaining wildernesses are a major driver of habitat loss and fragmentation, wildfires, overhunting, and other environmental degradation
Much road construction is chaotic or poorly planned
Not all roads are environmentally detrimental
Roads or road improvements in areas where most native vegetation has already been removed, and where farming yields are low, can help to improve agriculture and local livelihoods with limited environmental costs

Source : Global Road Map

CIOB HOLDS 12TH WORLD CONSTRUCTION SYMPOSIUM 2024

Ceylon Institute of Builders (CIOB) https://ciob.lk/ is the premier professional body of building and construction professionals in Sri Lanka established in 1961. The Ceylon Institute of Builders (CIOB) and Building Economics and Management Research Unit (BEMRU), Department of Building Economics, University of Moratuwa, Sri Lanka are jointly organising the 12th World Construction Symposium with the Green/ Sustainability Awards Night will be held on 9th and 10th August 2024 at Taj Samudra Hotel Colombo. The theme of the Symposium is "Empowering Construction Industry : Towards Sustainable Development Goals"

.World Construction Symposium which is held annually by the University of Moratuwa and CIOB will provide a special forum for researchers and practitioners in the areas of built environment and construction industry related research worldwide to share their knowledge, experiences and research findings. The Ceylon Institute of Builders (CIOB) has been very successfully conducting this symposium since its commencement in 2012. Each year it has grown and expanded its scope of attendees and contributions to the betterment of Sri Lankan Construction.

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Chairperson WCS

Dr Rohan Karunaratne
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Eng. Saliya Kaluarachchi
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Mr. Kalana Alwis
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Co-chair WCS

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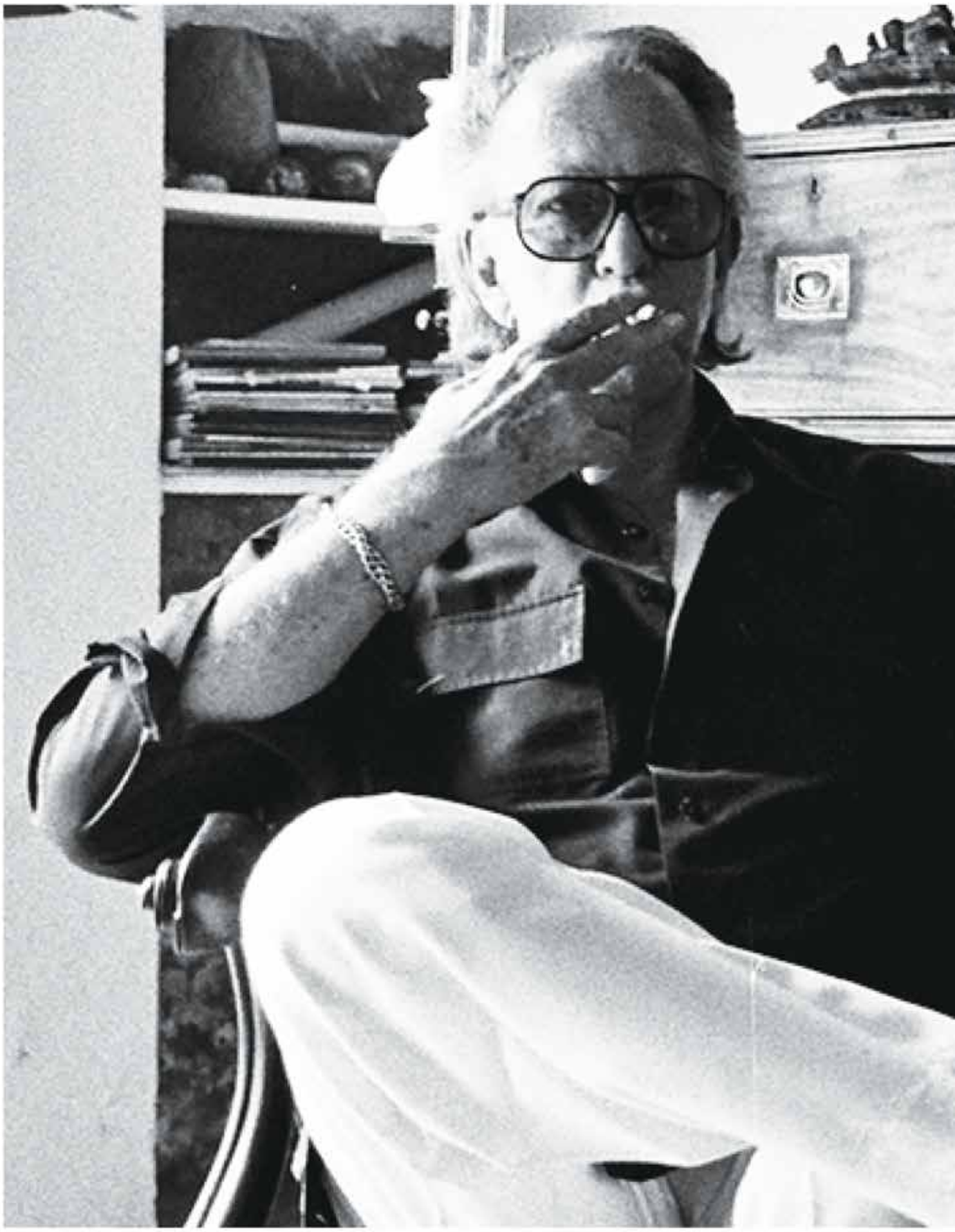
With the help of the University of Moratuwa, this is one of the main events where the global and local Universities and Professionals come together. More than 100 research papers are being submitted from top ranked universities from all over the world. CIOB is of the view that these research papers should be entertained and used for the practical use to the benefit of the industry by the industry research units and authorities of the public and private sectors.

Furthermore, the decision makers of the industry have to seriously think about bringing down constriction cost, inefficiency in management and cut down wastages. If we attend to these we can save over 25% and in that case Sri Lankan construction cost can remain competitive in par with our neighbouring countries. However other countries our construction quality and lifetime is very high and we have almost no failures."

CIOB also look forward to the implementation of the roadmap 2023-24 handed over to the President and the construction industry as the local debt restructuring process is under way. JICA and other foreign funded projects need to be started subsequently.

The 12th World Construction Symposium with the UOM and the CIOB has planned to conduct the annual Award Ceremony as the concluding event. It aims to convert academic papers and concepts into a reality and acknowledges those who have integrated academia into the Sri Lankan Construction Industry. As always, Tokyo Cement Lanka PLC has come forward as the Principal Sponsor to support the innovative annual Symposium on sustainability development by the University of Moratuwa. In such a difficult time, CIOB will also conduct a Green and Sustainable Awards evaluated by a panel of prominent industry professionals and academics to recognise efforts towards sustainability in various fields, organisations, projects and people to appreciate and motivate the industry stakeholders.

Ceylon Institute of Builders



Geoffrey Bawa

THE GREAT

- Chamara Sumanapala-

Steel Corporation Building which was planned by Bawa in 1996

The moment when Geoffrey Manning Bawa, the lawyer, decided that law was not his passion in life, must be one of the most significant moments in modern history of Sri Lankan architecture. Fortunately, he had the means to change course and study something new. Thereby, Sri Lanka's best known architect emerged.

Born on July 23, 1919, Bawa was educated in Royal College, before studying law at Cambridge. He returned to the island and worked at a law firm for some time before his mother passed away. Bawa left the job and started traveling, and was considering settling in Italy.

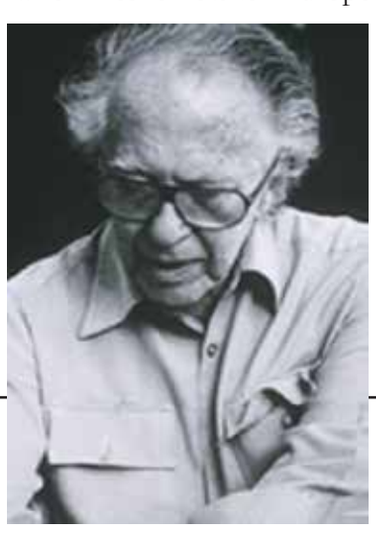
After Ceylon gained independence in February 1948, Bawa returned to the island and bought a derelict rubber estate at Lunuganga, near Bentota in Galle District, with the aim of transforming it into a tropical evocation of an Italian garden.

However, once he took up this challenge, he was frustrated by the lack of technical knowledge. Bawa joined HH Reid in Colombo for an architectural apprenticeship. Reid was the sole surviving partner of Colombo based architecture practice Edwards, Reid and Begg. After Reid's death in 1952, Bawa enrolled at the Architectural Association, in London, qualifying in 1957, at the age of 38. He returned to Ceylon and took up what was left of Edwards, Reid and Begg.

Turning Point

Bawa gathered together a group of young architects. They included the batik artist Ena de Silva, the designer Barbara Sansoni and the artist Laki Senanayake. As his practice evolved, Bawa searched for an essentially Sri Lankan style of architecture.

In 1959, Bawa was joined by Ulrik Plesner, a young Danish architect. Himself an interesting person, Plesner brought with him an appreciation of Scandinavian design and detailing. He also helped further encourage Bawa's curiosity about Sri Lanka's building traditions. Plesner and Bawa were to work together in a close partnership until 1967, when Plesner left for Europe.



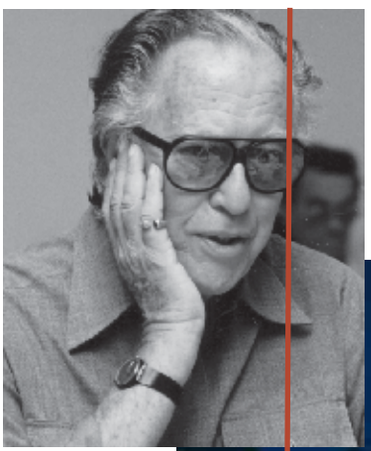
The othe members of the team also dispersed for various reasons leaving K Poologasun dram, an engineer, as Bawa's sole partner.

Their partnership was to last the next two decades. These two decades were divided almost in half into a period of consolidation and a period of growth. Without much of his team and with new restrictions of the 1970-77 Sirima Bandaranaike era, the next decade was a period of consolidation.

It completely changed when the new J.R. Jayawardene government opened the economy and embarked on a number of new building projects, including the new Parliament Building. His design of the new Parliament Building attracted more attention to his approach and more fame, along with more work. The Parliament building embodies influences from classical Sri Lankan monastic architecture, Kandyan temples and the palace architecture of Kerala in a modern way.Accompanying the building are gardens which are getting relatively much less attention.

The Parliament Building, rising in the middle of a lake connected by a single causeway, is a symbol of Sri Lanka's modern architecture.

Bawa had designed several buildings for educational institutions, mainly schools. The culmination of his educational buildings came in the 1980s when he designed several buildings for the University of Ruhuna. This occupied much of the 1980s. At the age of 70, Bawa closed his firm, but continued to practice architecture. One of Bawa's most renowned designs, Hotel Kandalama, was done in the early 1990s, after he had closed the firm.



Parliament complex
Sri Jayewardenepura , Kotte

He fell ill in 1998 and died five years later May 27, 2003. Until illness prevented him from working, he gave his spare time and a considerable amount of money on experimenting at Lunuganga, the project which made him an architect.

New Developments

Bawa is known for a number of private houses he designed from around the early 1960s. With increasing population and limited land in urban areas, solutions were needed to ensure privacy and comfort, within the available land. This was threatening the viability of the bungalow typology which the British had bequeathed, points out David Robson, in his eulogy to Bawa published in Arch Daily, a decade after the master architect's death.

The Parliament building embodies influences from classical Sri Lankan monastic architecture, Kandyan temples and the palace architecture of Kerala in a modern way.Accompanying the building are gardens which are getting relatively much less attention.

Robson points out the three solutions Bawa employed to overcome space constraints. They were to turn the house in on itself and resurrect the courtyard,to build upwards and to introduce the roof-house.

"Courtyard houses had been popular with the Kandyan Sinhalese, with Jaffna Tamils, with coastal Moslems and even with the colonial

Dutch, but their use was discouraged by the British and by British planning regulations," Robson recalls. However, Bawa found a new meaning to it, expanding what was used in Sri Lanka several centuries ago, to create more open spaces within the house.

Contemporary Designs

The house he designed for his friend Ena de Silva contained a series of pavilions and verandas contained within a high surrounding boundary wall and arranged to form a major central courtyard and five subsidiary courtyards. Its spatial qualities were enhanced by the choice of materials: walls of plastered brick, roofs of half-round Portuguese tiles, columns of satin wood, windows of timber lattice, floors of rough granite, Robson states. The house recalled ancient Kandyan manor houses, but the open plan and continuous flow of space suggested a more contemporary design.

Bawa's second response was to build upwards as seen in the house he designed for Peter Keuneman, which occupied three floors. The ground floor was given over to a car port, office and staff quarters, the first floor was occupied by the kitchen and bedrooms, and the top floor was reserved for sitting room and roof terrace.

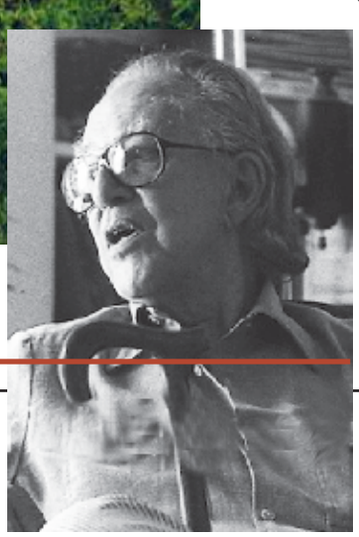
None of these houses remain as they are. Ena de Silva's house has been demolished which Keuneman's house has been altered.

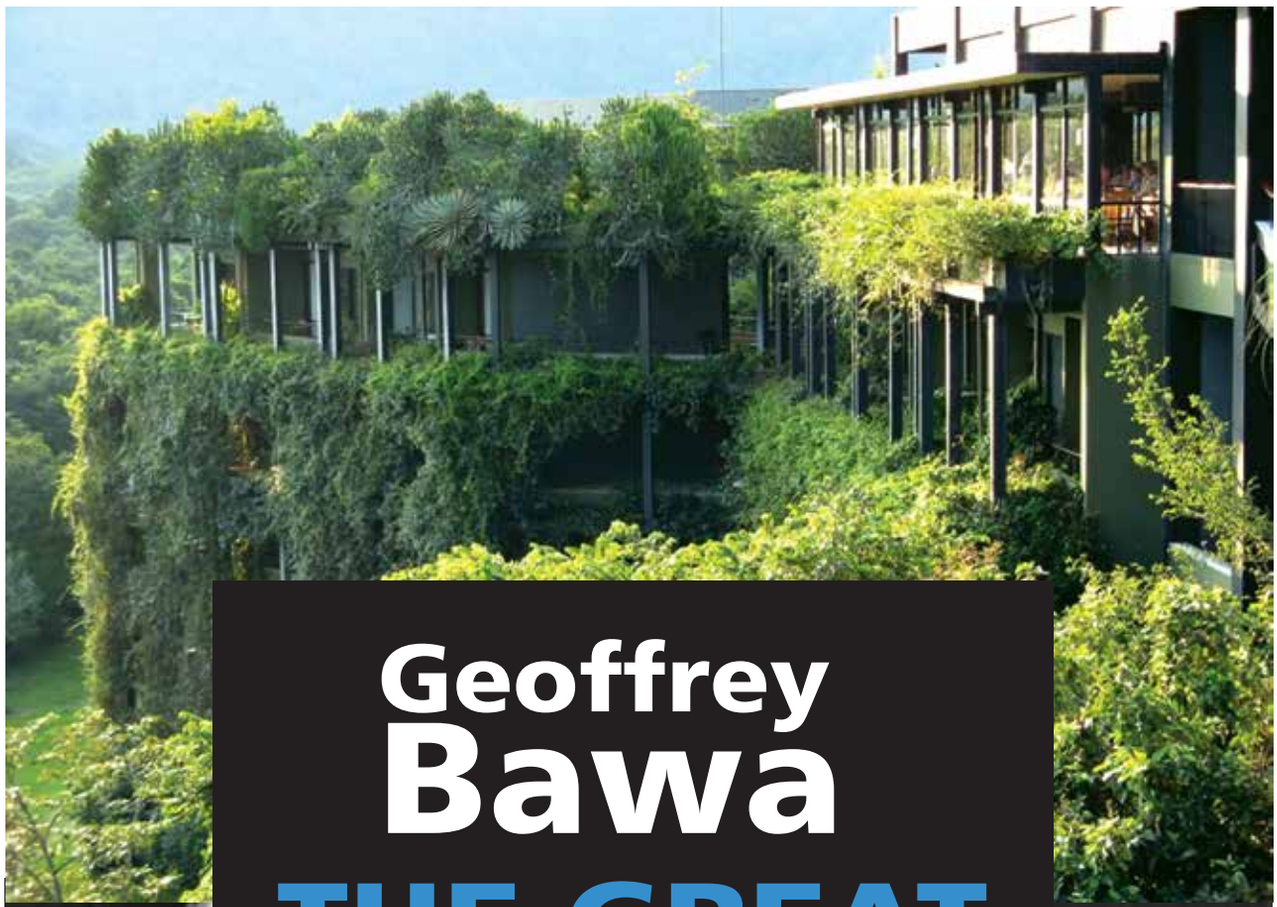
The third response was the 'roof house'. "Houses such as the Polontalawa Estate Bungalow and the Jayawardene House at Mirissa dispensed with walls and asserted the primacy of the roof in the tropics," Robson elaborated.

Bawa designed a number of hotels which was a need of the up and coming tourist industry. "His designs for hotels were embraced for their ability to create location-specific housing, which at the time was a dramatic departure from the trend of designing hotels to fit anywhere in the world. In the Bentota Beach Hotel (1970), Bawa created a resort that referenced its surroundings while allowing for a modern lifestyle" says Patrick Kunkel in a recent appreciation of Bawa's work.

Bawa won recognition and awards for his work, including the Chairman's Award of the Aga Kahn Special Chairman's Award for Architecture (2001) and the title Deshamanya, in recognition of his contributions to his country by the government of Sri Lanka. While Britain never officially awarded Bawa for his work, Prince Charles paid a personal tribute to him at Lunuganga when he visited Sri Lanka for its 50th Indepen dence Anniversary in 1998.

One of his another renowned designs; Kandalama Hotel Complex in early 90's

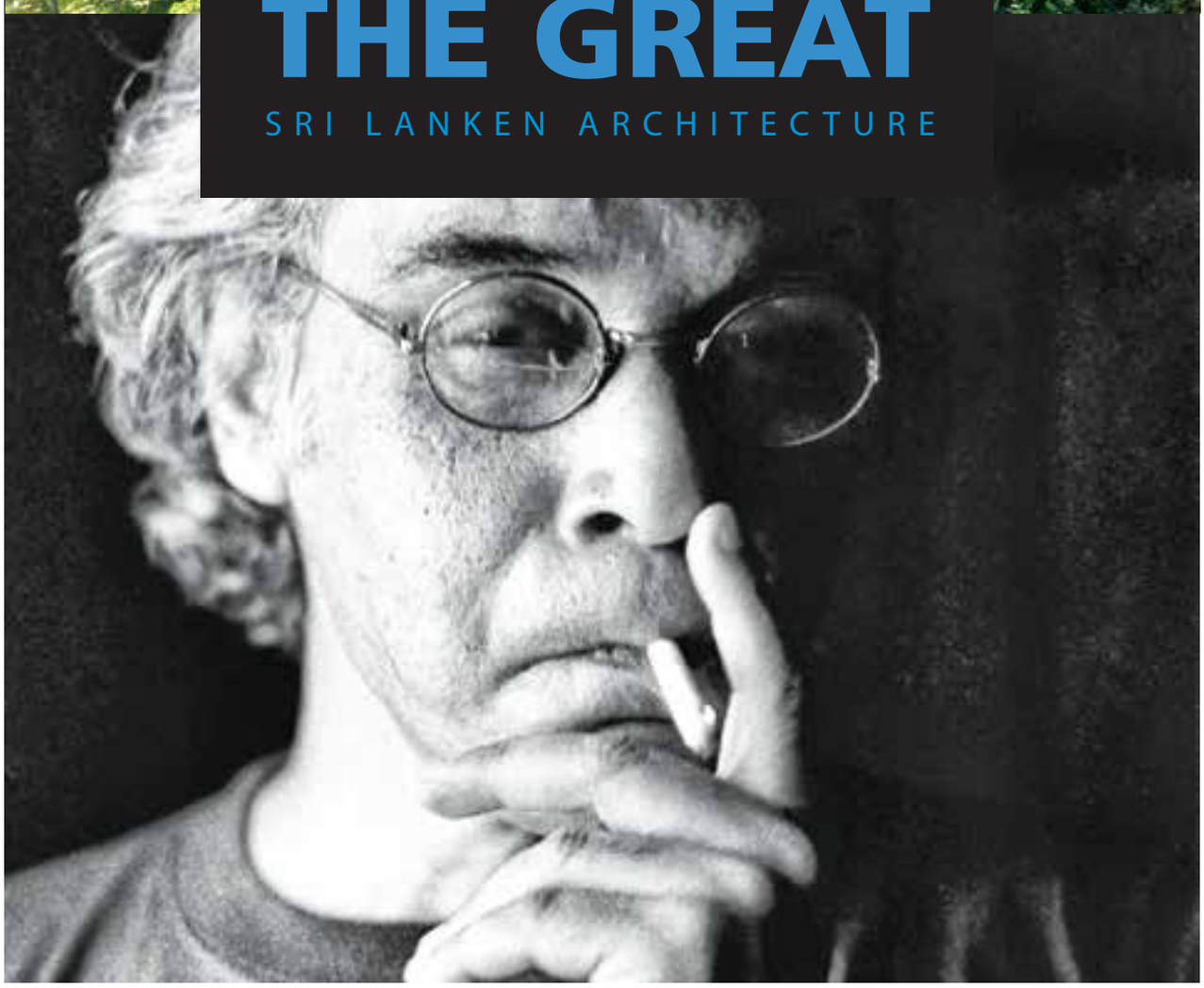




Geoffrey Bawa

THE GREAT

SRI LANKEN ARCHITECTURE



NAVIGATING SRI LANKA'S CONSTRUCTION CRISIS:

By - Shanika Gamage

STRATEGIC INNOVATIONS & FUTURE PROSPECTS

As Sri Lanka grapples with multifaceted challenges—from economic turbulence and high public debt to geopolitical tensions and climate change—the construction sector stands at a critical juncture. The ongoing crisis demands innovative governance, modernized financial approaches, and strategic interventions to foster industry recovery and growth.

ECONOMIC & POLITICAL LANDSCAPE

The country's economic recovery efforts have been heavily influenced by negotiations with international creditors and the IMF. The government's attempts to stabilize fiscal policies and manage debt levels are crucial for alleviating economic strains. However, the current focus on economic reforms must extend to the construction sector, which plays a pivotal role in driving national development.

Political instability and social divisions further complicate the scenario. Fragmented local politics, coupled with rising social unrest and poverty, impede cohesive economic strategies. The construction sector, closely tied to economic stability and growth, is significantly affected by these socio-economic dynamics. Addressing regional disparities and enhancing transparency in socio-economic programs are essential to counteract these challenges.

REFORMING THE CONSTRUCTION SECTOR

The Ceylon Institute of Builders (CIOB) has outlined several proposals aimed at revitalizing the construction industry. Key initiatives include:

1. Reviving Stalled Projects: Restarting halted construction projects is vital for maintaining momentum and economic activity. Attracting foreign direct investment (FDI) and supporting local manufacturing will also be critical.

2. Financial Support and Modernization: Immediate financial relief for contractors, modernizing contract terms to address unforeseen crises, and establishing a construction sector development fund are imperative. These measures will alleviate financial pressures and encourage private participation in infrastructure projects.

3. Policy Reforms: Advocating for a separate ministry dedicated to the construction industry highlights its significance in employment and GDP contribution. This structural change aims to enhance focus and resource allocation.

4. Learning from Global Best Practices: Embracing innovative procedures, adopting digital solutions, and streamlining payment processes can transform the sector. Implementing global best practices tailored to local needs will drive efficiency and sustainability.

GEOPOLITICAL & CLIMATE CONSIDERATIONS

Sri Lanka's strategic positioning amidst escalating global tensions adds another layer of complexity. The country's ability to navigate geopolitical competition and maintain economic stability is crucial. Strategic diplomacy and conflict prevention measures are necessary to safeguard economic interests and territorial integrity.

Climate change presents an additional challenge. Extreme weather events and environmental degradation disrupt construction activities and increase costs. Investment in resilient infrastructure is essential to mitigate these risks and ensure long-term sustainability.

THE PATH FORWARD

The upcoming 13th World Construction Symposium will serve as a platform for showcasing innovations and fostering collaborations. This event underscores the importance of a robust and dynamic construction sector in driving Sri Lanka's recovery and development.

In conclusion, Sri Lanka's construction industry faces significant challenges but also opportunities for transformation. Through strategic interventions, financial support, policy reforms, and adoption of global best practices, the sector can overcome current obstacles and contribute to the country's economic resurgence. By working together—government, industry leaders, and stakeholders—we can build a resilient, sustainable future for Sri Lanka's construction sector.

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Warranty	Not just a document, but a genuine warranty from an established company.
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Quality	Not just the raw materials used, but how they were used in quality assurance and quality control (QA/QC) systems.

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New jobs entering the construction space

To fill the many skilled job openings in construction, the sector needs to attract Gen Z workers – the generation that grew up with gaming consoles, does everything on its smartphone, knows its way around virtual reality, and even plays around with 3D printing technology – all the tools we're also seeing in the construction sector.

Andy Leek, virtual design and construction director at the construction management and design-build firm PARIC in Missouri, says: "For many students, this is the first time they are seeing commercial applications of drones, laser scanners and robotics used on a job site and they are surprised by the heavy use of technology in the construction world. This new generation of workers are already heavy consumers of technology, and most of them are already comfortable with the same smartphones and tablets we use to manage work on our projects."

If we envision creating more with less, and want to ensure more efficient and more sustainable outcomes, we know that the future of construction will need to be digital. And the next wave of jobs, careers, and building projects in the construction sector will, no doubt, be increasingly digital and high-tech. Robots will take over many easily automatable tasks, but will be less likely to be deployed in jobs that require human interaction. We are transitioning to a future in which heavy machine and drone operators will carry out their jobs from air conditioned offices at remote locations all over the world. A world in which

prefab materials will be created in factories staffed by robots and delivered via autonomous systems. As there will always be a need for supervision, and robots will need to be set up and instructed, in the future humans will still be very much in demand and needed on construction sites.

AI-assisted architect

With the construction sector becoming more and more digitally focussed, the design process will also become increasingly interspersed with various technologies, such as artificial intelligence. In the future, creatives will make much more use of AI to assist them in creating art and even designing buildings. For new design projects, architects already make use of historical construction, design, and building data. But now, AI enables them to use unfathomable amounts of this data in a millisecond, which could really enhance the design process and revolutionise architecture.

And using parametric design, with its options to select design output, set the constraints, and plug data, architects can explore various parameters to generate a myriad of outputs with which they can create forms and structures that would otherwise have been virtually impossible. Mike Mendelson, instructor and curriculum designer at the Nvidia Deep Learning Institute, says: "Computers are not good at open-ended creative solutions; that's still reserved for humans. But through automation, we're able to save time doing repetitive tasks, and we can reinvest that time in design."

Construction drone pilot

Drones are becoming increasingly common on construction sites across the world, and drone pilots help the construction sector save lots of money. Drone pilots oversee the performance of the drone, conduct safety tests and maintenance, and operate the drone's cameras and other equipment. Drone pilots are responsible for planning flight routes, navigating the machines along designated paths, generating overviews of aspects of the build, and taking high-quality footage that can help gain valuable insights on the development of a project. They conduct surveys to help construction companies keep track of various aspects of their operations, such as safety conditions on building sites and the volume and exact location of stockpiles. Drone pilots can also do planning work using a 3D map created with aerial data, to generate insights into whether certain areas are suitable to build, or to identify locations where materials are best stored.

Cybersecurity expert

Construction companies have many physical assets, from machinery to materials to vehicles, as well as lots of critical data assets – like the company's proprietary data but also critical information on construction time frames or building plans. This data could be exploited, leading to serious financial and legal ramifications. The rise of the IoT and AI in construction has led to a need for cybersecurity professionals to protect companies from cyberattacks and prevent potential damage.

Cybersecurity experts will be tasked with maintaining security protocols and ensuring compliance with various levels of cyber-defence laws. A cybersecurity professional in construction will need to have a wide range of skills, including database administration and analysis, computer forensics, (ethical) hacking and programming, cybersecurity operations management, cryptography, encryption, IT architecture, and security engineering. The need for skilled cybersecurity professionals is high and growing as the use of technology is seeing an exponential increase across various sectors of construction.

Robot manager

Robots will increasingly be deployed to assist with repetitive tasks, work on assembly lines, and help with 3D printing and modelling. Robots in construction can help minimise risk and limit accidents on building sites and make all kinds of tasks more efficient. But these robots also need to be connected to the network, they have asset management requirements, and security and safety concerns. A robot manager or chief robotics officer will be in charge of the launching, implementation, and running of robotics on the construction site – in other words, ensuring that the productivity gains that AI and robotics promise are indeed achieved. The CRO of the future, however, will increasingly manage robotics in the work environment and oversee the collaboration between these robots and their human coworkers. C Dwight Klappich, research vice president at Gartner, says: "Companies with extensive use of robotics across construction, manufacturing, and logistics should look to create a CRO position that will blend engineering, IT, and human capital management skills to develop the management structure to oversee all facets of the robotic life cycle."

Courtesy: richardvanhooijdonk.com

5 Ways to Increase Control over Project Delivery

KAROLINA DOBROWOLSKA

Many aspects of your project can go wrong in the execution stage. You can exceed the budget due to unplanned costs, extend the work because of the delays or have communication resulting in constant problems and last minute changes.

Even though many external and internal factors influence your delivery, you can still develop some practices to manage them. The most important aspect here is proper project control. But how to provide it? Let's take a look at our list!

Devote More Time to The Planning Stage

As a person responsible for project delivery, you probably heard a million times that proper planning is crucial for further success. But, in real life, do you really devote enough time to the planning stage?

Did you know that 39% of projects fail due to a lack of proper planning? If you do not devote enough time to that, you deprive your project of more than 1/3 of the chance for success. It is a lot!

To increase your chances at the very beginning, try to devote more time to planning activities. While scheduling work:

- consider potential blockers and risks that can occur during execution
- assure **a clear view of your project schedule** with dependencies between tasks (so that if any risk occurs to the project, you will be able to move the single tasks without risking the final deadline)
- review the previous projects to see what worked well in the past and which aspects should be improved
- engage your team in the process

Engage Your Team - Set Clear Responsibilities

Many project managers do not want to engage their employees in the project planning process as they fear organisational mess and unproductive hours spent in long meetings. We understand these concerns, but involving the team in the process has undeniable benefits:

82% of employees have ideas on how to improve their work and obtain better results

23% higher profitability of projects in which employees were engaged in the planning process

4,6 times better performance of employees who feel heard

So how to plan with employees to make the process efficient and productive? Crucial here is the responsibility aspect. If your employees feel accountable for preparing specific parts of the planning, they will be much more engaged in project execution later on. Also, setting up clear responsibilities gives you a good control tool as you know which teammate has the best information about specific activities.

Establish A Communication Path

Okay, our employees are engaged and responsible for their project parts. Two steps from five are done. But how to control the execution of their activities once the project starts and everybody seems super busy with their daily tasks? Also, should the team contact you by phone, email, report or company's communicator if any risk occurs?

To gain control over your project delivery, you must know what happens during its execution. You are not able to watch, manage and control every single process. That is why, before a project starts, **you should discuss with the team your communication path.** Apart from the primary source of communication, specify an additional type used only for **crisis situations.** Thanks to that, you know that you must take care of it immediately after receiving a notification

Assure The Bigger Picture

So far, you have:

- prepared a detailed project plan with detailed work schedule
- engaged your team in the process, making them accountable for their actions
- created a communication plan and made sure that your team is on the same page with the changes

but have you thought about project control on the company level?

Many project managers and company owners tend to forget that changes on the company level also enormously impact their project's success. Why? It is **because construction assets like money, employees' time or equipment are the same for the whole company.** So even with your tasks planned perfectly, you can still fail to deliver them on time if the work on another project is delayed. The solution here can be the **assets approach in project management.** According to this approach, you should consider the situation on other projects during the scheduling process. Are certain machines available by the time the project starts? Or, how likely is it that project A, from which I need employees, will be delayed? By treating assets this way, you can better plan your actions and react more flexibly to the changes. And as you probably already know, **flexible project management** is nowadays more crucial than ever.

Courtesy : ARCHDESK

Interesting Construction Facts

Tim Forestel

The construction industry is incredible.
From massive skyscrapers that pierce the clouds to incredible technology discoveries and inventions, the industry wows every single day.
Here are 10 facts about the construction industry that you don't know - but definitely should.

1) The Tallest Crane in the World

The world's tallest crane is the Liebherr type 357 HC-L. It has a max hook height of 53.3 meters or 174.8 feet.

2) The Industry Has a Bright Future

In 2018 the global construction industry spent $11.4 trillion.

By 2030 this number is expected to reach $17.5 trillion.

3) A Lot Of Bricks

There are 10 million bricks in the Empire State Building.

4) Concrete Jungle

Concrete is the most used material in construction.

5) Money Money Money

By 2030, global spending in construction is expected to reach $17.5 trillion USD.

6) A Global Workforce

More than 180 million people work in construction around the world.

7) Count the Nails

When building an average size house, that is 1,200 square feet, there are about 12,000 nails that are used.

8) World Record Nailing

Willi Maier holds the record for hammering 24 nails, in 1 minute.

He broke the record at the Vienna Recordia event on September 26, 2010.

9) It's a Bird... It's a Plane... It's a DRONE!

Drone use on construction sites has increased more than 200% in the last 5 years.

10) Women in Construction

As of 2020, women account for 25% of the construction workforce.

TRANSFORMING CONSTRUCTION:

HARNESSING AI & IoT FOR SUSTAINABLE DEVELOPMENT

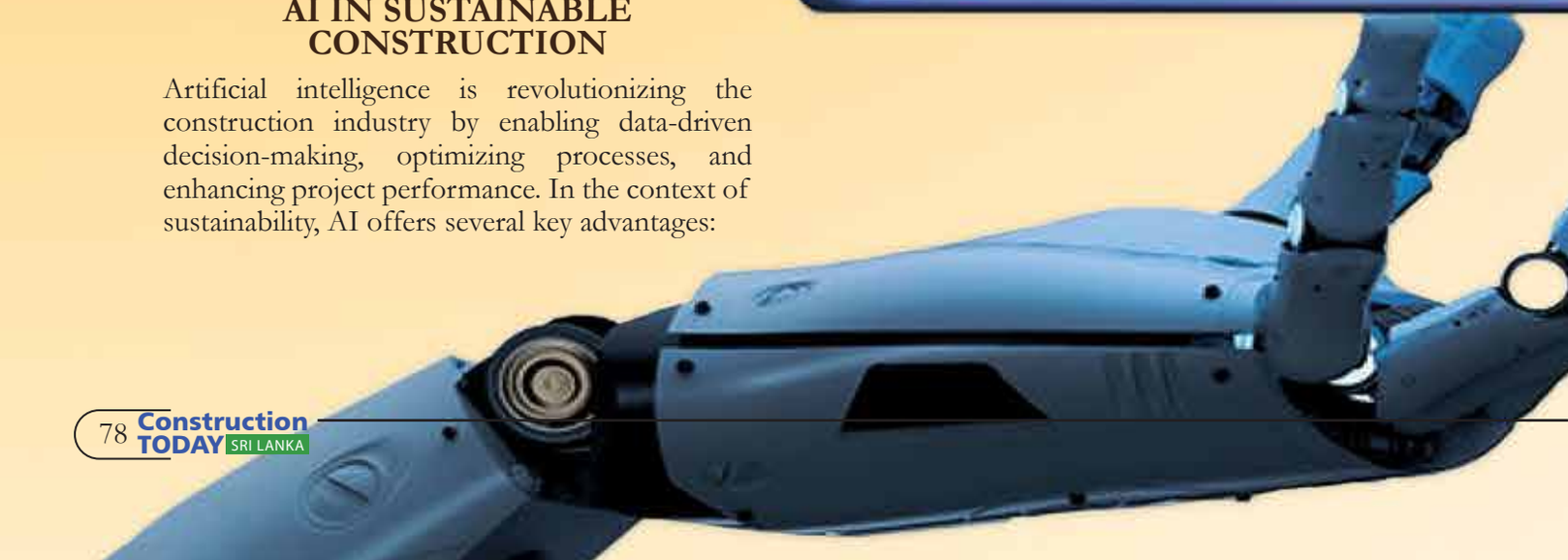
"AI is a mirror, reflecting not only our intellect, but our values and fears." - Ravi Narayanan, VP of Insights and Analytics, Nisum.

By - Shanika Gamage

In an era defined by rapid technological advancement and growing environmental concerns, the construction industry is undergoing a profound transformation. Digital innovation, particularly through artificial intelligence (AI) and the Internet of Things (IoT), is revolutionizing traditional construction practices, driving efficiency, and promoting sustainability. In this article, we explore the transformative impact of AI and IoT in promoting sustainable construction practices and improving project outcomes.

AI IN SUSTAINABLE CONSTRUCTION

Artificial intelligence is revolutionizing the construction industry by enabling data-driven decision-making, optimizing processes, and enhancing project performance. In the context of sustainability, AI offers several key advantages:



1. Predictive Analytics: AI algorithms can analyze vast amounts of data to predict and optimize energy consumption, material usage, and resource allocation in construction projects. By identifying patterns and trends, AI can help project managers anticipate potential issues and optimize resource usage, thereby reducing waste and environmental impact.

2. Design Optimization: AI-powered design tools can generate innovative and sustainable design solutions by simulating various scenarios and evaluating their environmental impact. From optimizing building layouts for natural lighting and ventilation to selecting eco-friendly materials, AI-driven design tools can help architects and engineers create more sustainable buildings and infrastructure.

3. Energy Management: AI-enabled energy management systems can continuously monitor and optimize energy usage in buildings, identifying inefficiencies and recommending energy-saving measures in real-time. By leveraging IoT sensors and data analytics, AI can help building owners reduce energy costs, minimize carbon emissions, and enhance occupant comfort and well-being.

4. Construction Automation: AI-driven robotics and automation technologies are revolutionizing construction processes, enabling faster, safer, and more efficient project delivery. From autonomous construction vehicles and drones to robotic bricklayers and 3D printers, AI-powered automation is streamlining construction workflows and reducing labor-intensive tasks, thereby improving productivity and reducing construction timelines.

IoT IN SUSTAINABLE CONSTRUCTION

The Internet of Things refers to the network of interconnected devices, sensors, and systems that collect and exchange data in real-time. In the construction industry, IoT technologies are transforming how buildings and infrastructure are designed, constructed, and operated. Here's how IoT is driving sustainability in construction:

1. Smart Building Systems: IoT sensors embedded in buildings can monitor various parameters such as temperature, humidity, occupancy, and air quality, allowing building owners to optimize HVAC systems, lighting, and ventilation for energy efficiency and occupant comfort. By providing real-time insights into building performance, IoT-enabled smart building systems can identify inefficiencies and enable proactive maintenance to reduce energy consumption and operating costs.

2. Construction Site Monitoring: IoT sensors and wearable devices can track equipment usage, monitor worker safety, and collect environmental data on construction sites. By providing real-time visibility into site conditions and activities, IoT enables project managers to optimize resource allocation, mitigate risks, and ensure compliance with environmental and safety regulations.

3. Sustainable Supply Chain Management: IoT technologies can track the movement of materials and equipment throughout the construction supply chain, enabling transparency and traceability. By monitoring the environmental footprint of materials, including their origin, production methods, and transportation, construction companies can make informed decisions to minimize environmental impact and promote sustainable sourcing practices.

4. Asset Lifecycle Management: IoT-enabled asset management systems can track the performance and maintenance needs of building components and infrastructure assets throughout their lifecycle. By collecting data on asset condition, usage, and performance, IoT enables predictive maintenance and lifecycle optimization, prolonging asset lifespan and reducing the need for premature replacement, thereby minimizing waste and resource consumption.

AI and IoT technologies are revolutionizing the construction industry, driving efficiency, innovation, and sustainability. By harnessing the power of AI for predictive analytics, design optimization, energy management, and construction automation, and leveraging IoT for smart building systems, construction site monitoring, supply chain management, and asset lifecycle management, the industry can overcome traditional barriers to sustainability and achieve better project outcomes. As the demand for sustainable construction practices continues to grow, AI and IoT will play an increasingly important role in shaping the future of the built environment, creating healthier, more resilient, and more sustainable communities for generations to come.

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