

# GreenPulse

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# architect'19

The 33rd ASEAN's Largest Building Technology Exposition

**30 APR -  
5 MAY  
2019**

**CHALLENGER  
HALL 1 - 3  
10 AM - 8 PM  
IMPACT**



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# FUTURE SMART CITIES

## AS WE DESIGN IT

According to the research, U.S Data centre's use 40% more power than the entire UK. Though we constantly read articles on how harmful the combustion engines in vehicles are, we are losing sight on the hidden issues. We are moving into a new and very exciting era which involves the creation of smart cities, smart homes and internet based devices however, we are not looking eye to eye on the power consumption these devices produce. For example in 2018 there were more than 1 trillion of photos taken and 85% of them from our smartphones roughly 125 pictures per person which people are now storing these images on the cloud or in reality in huge data centres which is a huge concern that should be taken into consideration.

- ▼ **Google** has in excess of 19 data centres that uses upto 260 million watts of power which accounts to 0.01% of global energy that can be consistently power 200,000 homes.
- ▼ **Facebook**, with around 1 billion users has its own server farms and the data centre facility uses 8 Kilowatts of power. Facebook has data worth over 100 PB capacities and as per the recent press release, Facebook has admitted that its users utilize around 7PB of photo storage from its facility every month.
- ▼ **Amazon** has 450,000 servers and has spent around \$86 million on its servers. It stores 40 billion objects on it's cloud storage business. Amazon Web Services



has 40,000 servers dedicated to its cloud customers and gets 17 million monthly visitors who access 410 TB of data from its platform and 30 million of Amazon users stream 40PB of videos per month.

- ▼ With 1 billion users and 100,000 servers, **Microsoft** has approximately spent \$23billion on its data centres. In 1989, Microsoft came up with its first data centre which was 89,000 sq.ft and designed its own data centre with 500,000 sq.ft in 2006, In 2013 it adds up to \$112 million facility.

While data centres provide a great opportunity for sustainable development, since they use large amounts of power the push for greener computing infrastructure is causing many organisations to rethink their location and designing data centre space to meet requirements. When companies tend to cut consumption levels the efficiency of modern-day products and devices could operate more efficiently. Although the grid doesn't specify the difference between renewable and coal fired operations, some geographic areas are certainly known



for their production of renewable energy with positive branding and CSR as secondary benefits. By purchasing renewable energy sources or reducing energy use, minimising environmental footprints, green initiatives can decrease bottom line operating costs.

During early stages of research, energy consumption was never Yotta's first priority because practically we focus on developing new technology to sustain the supply and demand for the world that demands speed and convenience. Several years ago when Yotta was designing the decentralised cloud network platform they realised that by decentralising the system and making the units smaller it requires less cooling and therefore there is less energy consumption by 47% compared to traditional data centres. The data scientists at Yotta Laboratories made a major breakthrough when the discovery of this came forth. Later on the research started on how to make data storage more energy efficient and by designing a 5 petabyte edge cloud platform it was possible for Yotta to eradicate the cooling and by sharding the data they could control the system by switching of the power and then sending pockets of data during the night when power consumption is reduced.

### DECENTRALIZED ENERGY GRIDS

Decentralized energy grids, linked to the emergence of renewables and distributed generation sources around the world has the potential to cut costs, increase energy efficiency, improve reliability and support renewable energy integration. Coordination issues across grids, however, remain largely unresolved. Blockchain can provide the solution using smart contracts to optimize coordination, enabling genuinely local markets for energy trading. For example, installation of blockchain software with integrated smart contracts, coupled with smart-meter technology, allows for traceability and verification of energy sources, efficient peer-to-peer trading, better balancing and optimization of energy load and demand.

Peer-to-peer trading also can support and bolster renewables uptake, minimizing the need for energy companies, energy traders, payment providers, and reduce energy transportation losses. Furthermore, transactions can be securely and automatically recorded, with smart contracts on a blockchain establishing a transparent process users can trust, but with better protection against cyber-attacks. Decentralized grids additionally can build local energy resilience through rerouting power in response to a natural disaster, or in areas around the world where energy scarcity is prevalent.

In future, the global transition to electric mobility could be integrated into decentralized energy systems, further adding to energy-system storage and demand-supply balancing. Blockchain-based networks allows electric vehicle owners to charge their car via any charging station network autonomously and charged for the energy consumed. This type of charging information can help optimizing decentralized grid solutions.

### NEW ENERGY MANAGEMENT PLATFORMS

Scaling up the amount of renewable energy generated in the global energy mix is a central part of the 2015 Paris Agreement on climate change transition. However, integrating high percentages of renewable energy such as solar and wind into traditional energy grids can present challenges to their stability and predictability. To facilitate the generation and distribution of renewable energy necessarily, a range of transactive energy technologies enabling electricity storage, energy trading, demand forecasting and management will need to be integrated into new intelligent "smart grids" which can be offered by blockchain.

A secondary market can exist to represent the environmental and social benefits of the electricity purchases through Certificates of Origin. However, the system for buying such certificates is often complex, with many organizations acting as intermediaries adds time, labour and cost burden to the process, and can breed a lack of trust to the accuracy of counting and trading. Blockchain's verification, traceability and transparency capability could significantly streamline this complex process and introduce confidence. It could also reduce the barriers to entry for smaller organizations, encouraging for Certificates of Origin and helping to grow demand for renewable electricity.



## NEXT-GEN SUSTAINABILITY MONITORING, REPORTING AND VERIFICATION

Corporations face increasing pressure from investors, consumers, governments and regulators to demonstrate sustainable business models and, in parallel, to prove their environmental credentials. Their sustainability reporting and external assurance of their environmental performance is an increasingly important aspect for good corporate management. Blockchain has the potential to transform both sustainability reporting and assurance, helping companies manage, demonstrate and improve their performance, while enabling consumers and investors to make better decisions.

Blockchain can enhance corporate reporting by enabling the independent sourcing and verification of company performance beyond the self-reported data often currently reported. This broader assessment would provide shareholders and stakeholders with a more realistic view of company's performance and impact. Methods such as rewarding stakeholders with automatic smart contract payment incentives for providing and verifying that data could act to incentivize governments and corporations to deliver on reporting and other environmental strategic objectives. Furthermore,

if combined with third-party measurement and verification tools (e.g. advanced satellites and sensors) would provide independent and accurate information to support an entity's management and investor decisions, improving market efficiency and providing incentives to drive change.

Blockchain applications are being developed to support third-party assurance of sustainability reporting. There is an ongoing research and piloting of applications to increase transparency and data authenticity. Automatic data collection and management (GHG emissions) could be released through smart contracts in order to access real-time, trustworthy data and minimize fraud. Improved GHG accounting through blockchain could increase effectiveness of carbon taxation as performance is contingent on transparent and trustworthy GHG emissions data.

The challenge is the willingness of organizations to report and store sensitive data on a decentralized network, the advances in technologies are very exciting and will impact everyone.

*For more information*

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# Association for Vertical Farming (AVF) Announces Partnership with Urban Future Global Conference

## AVF brings indoor farming forum to Europe's largest conference on sustainable cities

After successful annual conferences in Beijing, Amsterdam and Washington, D.C., the AVF is excited to host the 2019 edition at Oslo's Urban Future Global Conference on May 22-23. The AVF and Urban Future looks forward to welcoming entrepreneurs, companies, technologists, growers, city planners, research institutions, governmental bodies and enthusiasts from all over the globe to Oslo, the 2019 European Green Capital.

Adding to Urban Future's already extensive audience, the AVF will host a gathering of over 200 experts to discuss developments and provide solutions for the future of indoor and vertical farming. The AVF will facilitate keynote speeches, roundtable discussions and workshops over two half-day time slots. This conference-within-a-conference will touch on all of Urban Future's main thematic areas but will be the only forum to specifically focus on food production.

Entitled "Unlocking the Potential of Indoor Farming in Cities of the Future," this conference will give citizens and stakeholders alike unparalleled access to the most pressing topics in the indoor farming industry.

### Keynote speakers include:

- **Dr. Joel Cuello,**  
Professor of Biosystems Engineering and Director of the Global Initiative for Strategic Agriculture in Dry Lands (GISAD) at The University of Arizona.
- **Dr. Leo Marcelis, PhD.,**  
Head of Chair Group Horticulture and Product Physiology, Wageningen University
- **Josef Schmidhuber,**  
Deputy Director, Trade and Markets Division, FAO
- **Gertjan Meeuws,**  
Co-Founder, Seven Steps to Heaven

More speakers will be announced in the coming weeks.

## WORKSHOP SESSIONS

### Establishing High-Tech Urban Food Systems in Cities of the Future

How can cities keep pace with the rapidly-evolving value chain?

The next decade will bring rapid change in the technologies and techniques used to grow food in cities. How can businesses and entrepreneurs keep pace with this level of innovation? Join us in guided workshops to learn how to manage this influx of new technologies and apply them successfully to drive down costs, integrate renewable energy, and improve citizens' access to healthy, sustainably-produced food.

#### Topics:

- A. Can Blockchain technology advance the vertical farming industry? Moderator: Bernhard Hecker
- B. Potential of renewable energy sources in the industry and energy efficiency in indoor farms. Moderator: Ramin Ebrahimnejad
- C. Indoor/Vertical Farming Designs and Strategies. Moderator: Joel Cuello

## ROUNDTABLE DISCUSSION

### The Science of Food Production in the City

Food and future cities -- growing food where the people live: what, why and how

Moderated panel discussion with public Q&A session.

Food production meets all of the UN's 17 Sustainable Development Goals; accordingly, it also touches on all of Urban Future's thematic areas. Why then is food production so often left out of city planning? This roundtable discussion will cover the importance of placing food at the centre of city planning, and the best ways to go about doing so. Hear unique industry perspectives on what is working and what needs to change, and then take the opportunity to ask questions in a 20-minute public Q&A session.

Event info and tickets are available here: <https://pretix.eu/associationverticalfarming/urban-future-2019/>

Student tickets are available at a reduced price of €220. Please contact [kb@vertical-farming.net](mailto:kb@vertical-farming.net) for a voucher code.

Please send any questions or special requests to [info@vertical-farming.net](mailto:info@vertical-farming.net)



A black and white portrait of Venkata Gandikota, a man with dark hair and glasses, wearing a dark jacket and scarf. The background is a blurred outdoor setting with trees and light spots.

# Venkata Gandikota

## **Tell us a bit about yourself and your background**

I am Venkata Gandikota. I help organisations and individuals in changing their mindsets, adding new skill sets to realize the Sustainable Development Goals. I am a Founding Partner of Vault Impact, raising a 35M€ impact investing VC fund focused on Nordic startups; a Co-Founder of InnoFrugal ry (previously The Nordic Frugal Innovation Society) and the Lead Organiser for the InnoFrugal conference in Helsinki, Finland.

I am involved in helping to spread the conference

editions. We now have an annual UK edition at the Judge Business School in Cambridge University and a soon to be annual German edition in Stuttgart with Fraunhofer Institutes.

I also help Finnish businesses in India as the CEO of Indianeer Consulting. I am a guest lecturer at JAMK University of Applied Sciences (International Business), Jyväskylä University (Business Program) & Aalto University Executive Education (MBA Program) in Finland. I have a bachelors degree in Chemical Engineering from India and a Masters in Environmental Engineering from the USA.



**Briefly explain on the InnoFrugal conference, its focus in general and shed some light on the theme for 2019**

When we started our non profit work/organisation in December 2013, we wanted to get the word out about Frugal Innovations and how businesses can use less resources and deliver good quality, accessible, affordable and sustainable solutions.

Hence we started the InnoFrugal conference in 2015 as a 2 day celebration of case studies, thought leadership and a learning environment on how businesses can use aspects of Circular economy, Biodesign, Inclusive business, DIY/Maker movement, Design Thinking, Lean methodology to deliver Frugal Innovations.

Entering the 3rd edition of the conference, I was intrigued by how financing of businesses delivering these impactful solutions is such an important aspect. I realised, on the one hand, that the state agencies for innovation, funding, and aid are one avenue, but increasingly, on the other hand, in the startup space, a new kind of asset class called Impact Investing is putting money and helping scale these businesses.

So, from 2017 we added impact startup pitching contest and impact investing day as an integral part of the conference. This year on May 7-8, 2019 we have Day 1 (May 7th) designated as Impact Investing Day with startup pitching contest in partnership with Finnish Business Angel Network and Vault Impact & Day 2 (May 8th) is designated as Frugal Innovation day focusing on three main sessions - Advanced mobility & affordable electric vehicles; Affordable Healthcare; Smart Cities and Smart Villages.

**What are the challenges that you face during your journey promoting circular economy and SDG goals? How do you overcome them?**

As someone with Masters in environmental engineering and work experience on climate issues, my attraction to the theme of Circular economy was very natural.

What was important for me was also that both frugal innovations and circular economy rely of using less resources, and delivering accessible, affordable and sustainable solutions, be it through

technical side of things like refurbishing, reselling, re-manufacturing or through innovative business models such as product as a service etc.

The challenge arises from the fact that there is a lot of education that needs to be done to get policy makers, businesses and consumers to understand, implement and deliver these solutions.

The way to overcome the challenges is to consider strategies and roadmaps that need to be redesigned, business models that need to be changed, policy aspects, maybe even funding and some form of incentives that need to be put out to get behavioral changes.

We need the first set of trailblazers on both production and consumption side to take the steps in showing that this is a viable and profitable way for both people and the planet. This has started, but it is in desperate need of critical momentum as there is currently more talk than action.

**What is the future of circular economy? What's your message to startups in this space?**

If we truly are to realise the SDGs, I believe circular economy is a critical aspect of delivering them, but we have to be careful as there is no one size fits all, i.e., we can't expect to have the same circular economy solution implemented for example in Finland to work also in Singapore or India.

We need to see where the critical mass of acceptance is - is it in B2B solutions or B2C? Is it in developed economies or emerging markets? What does culture, geography and customer mindset play a role? I would urge startups to do this type of basic "market research" before going headlong with their circular economy solutions.

**What is the role of The Nordic Frugal Innovation Society in adopting Circular economy?**

We see it as a no-brainer in having circular product, service and business models as it also neatly aligns with our goal of delivering frugal innovations using less resources. I believe we are increasingly living in a world of "Value Conscious" and "Values Conscious" consumers and producers. We, at the InnoFrugal Association, help to educate, facilitate, accelerate and deliver these impactful changemakers.

# ASA Join forces with NEO to elevate Architect'19 to emerge ASEAN's Leading Expo, attracting over 850 Thai and international enterprises from 40 countries



The Association of Siamese Architects under the Royal Patronage (ASA) and N.C.C. Exhibition Organizer Co., Ltd. (NEO) announced the readiness in elevating Architect'19 to emerge as the leading exposition in ASEAN. This year, entrepreneurs from over 850 companies from 40 countries worldwide are showcasing over thousand brands of their products, services and technology in architecture and construction materials. The Architect'19 is to be held on 30 April - 5 May 2019 at Challenger 1-3, IMPACT Exhibition Center, Bangkok, Thailand.

Ajaphol Dusitnanond, President of the ASA stated that "The Architect'19 is ASEAN's largest building technology exposition. The expo aims to showcase the advancement in architectural design, which reflects the potential of the entrepreneurs and the role that architects play in the society. Still, Architect'19 is not limited only to those in architecture professions but it also widely opens to other related fields as well as the general public who are interested in design and construction."

Architect'19 will be held for the 33rd year under the concept "Living Green", presenting the architectural design concepts and innovative building materials that could revolutionize the industry while bringing in local wisdom to tackle the environmental problems with sustainable solutions. On this auspicious occasion, Her Royal Highness Princess Maha Chakri Sirindhorn is graciously presiding over the opening ceremony of the Architect'19 on Tuesday 30, April 2019."

Dr. Acharawan Chutarat, the chairperson of the Architect'19 committee, revealed that "Apart from showcasing innovative products from multiple countries, Archi-

tect'19 also features the Thematic Exhibitions specially held by ASA on eco-friendly building material innovation and adoption of local wisdom and technology in tackling the environmental issues in the present day context. Visitors can witness the first-hand Green Experience in every aspect from selecting ecofriendly building materials to continuously using different materials after the expo."

"At Architect'19, visitors can also experience "ASA International Design Competition 2019" under the design concept, "Uncanny Sustainability." The objective of this competition is to seek the innovative design ideas based on the sustainability and the originality of the solutions. Besides, the stage will also feature ASA Forum 2019 which will be participated by the world-renowned architects, namely, Mr. Kai Uwe Bergmann from Bjarke Ingels Group (BIG), Mr. Nico Kienzl from Atelier Ten, Ms. Sanne van Der Burgh from MVRDV, Mr. Asawin Chuchottaworn from Foster + Partners, Mr. Apichart Sirojanapinyo and Mr. Chanasit Cholasuek from Stu/D/O and Mr. Kamron Suthi, Eco Architect Co.,Ltd" revealed Dr. Acharawan Chutarat.

Sakchai Pattarapreechakul, President of N.C.C. Exhibition Organizer Co., Ltd., revealed that "Trade exhibitions play an important role in steering the national economy. In 2018, trade exhibitions generated over 2 million-baht revenue to our country and attracted over 30 million visitors comprising over 1 million trade visitors from overseas. Therefore, it is anticipated that Thailand's fast-growing MICE sector will grow by approximately 6-10% in 2019."



# architect'19

The 33rd ASEAN's Largest Building Technology Exposition

As for the readiness in hosting Architect'19, the expo has attracted the leading Thai and international exhibitors from over 850 companies and 16 pavilions from overseas comprising Australia, China, Germany, Hong Kong, India, Indonesia, Italy, Japan, South Korea, Malaysia, Singapore, Taiwan, Turkey, UK, USA and Vietnam, while over 400 fruitful business matchings are expected at the expo. NEO has also extended the invitation to other leading companies in architecture and construction across Southeast Asia region, especially the neighboring countries, Cambodia, Laos, Myanmar and Vietnam. The total trade value from the Expo is anticipated to reach over 10,000 million baht," further added Sakchai Pattara-preechakul.

Ajinveat Vhonthong, Senior Project Manager, N.C.C. Exhibition Organizer Co., Ltd., affirmed that "ASEAN's construction market expected to have an average growth of 5.2% between 2014 and 2020. Within the next 5 years, the investment in construction industry is speculated to be worth up to 2.9 trillion USD. Particularly, Thailand's construction market has grown by 5% in 2018 and is expected to expand up to 7-9% in 2018-2020."

"This year, the Architect'19 is held under the theme "Living Green" to invite every visitor to experience the environmentally-friendly products and technology. At present, Green Building has received increased attention and has been growing by 13% every year till 2020.

Thailand has also continuously embraced this green building concept as the number of green buildings in Thailand has significantly increased from 55 to 240 buildings in 2018. This year, the number is speculated to go up to 252 buildings," revealed Ajinveat Vhonthong.

As for the highlights of Architect'19, many leading entrepreneurs are showcasing a variety of their highlight products as follows. SCG Cement-Building Materials Co., Ltd displays their IoT technology for smart home system to deliver the ultimate convenience, freedom and happiness to the residents under the platform "Smart Living Solution." Jorakay Corporation Co., Ltd. showcases its GColor by Graphenstone, the natural color for both interior and exterior painting, certified by Cradle to Cradle, for high standard products taking into account the entire life cycle of the product, the health of the occupants and the recyclability of the environment. Thammasonn Co., Ltd. exhibits its water tank and water pump, the lat-

est water system innovation best known for its unique, space-saving design with special attention to the better quality of life and environmental protection.

TPI Polene Public Co., Ltd. proudly presents its Nano tech color innovation, which is awarded Energy Label No.5 and designed to save household expenses and protect the environment in response to this year expo theme "Green Concept." Mogen (Thailand) Co., Ltd, showcases its sanitary ware products, the trend setter in creative bathroom design that provides the combination of nature and technology, altogether with the color tone selection and decorative design inspired by nature. Häfele (Thailand) Limited highlights its innovative products including its digital locking system for the utmost convenience and safety, smart lighting system and door slides that can efficiently protect the building from sunlight and relieve the heat inside the building.

Architect'19 also features a wide range of interesting innovations including AICA Laminate from Japan, the non-toxic, the swimming pool innovation that resembles beach and sea from Beach Pool! as well as Halio smart-tinting glass from AGC and many more.

Architect'19 is to be held on 30 April - 5 May 2019 at Challenger 1-3, IMPACT Exhibition Center, Bangkok, Thailand. Those interested can register at [www.asa.or.th/architectexpo](http://www.asa.or.th/architectexpo) or learn more about the Expo at Facebook : ASA CREW and on ASA Application.





# Arup Expand Cities Capabilities across Southeast Asia with New Leadership Appointments

**A**rup, a global design and consulting firm, announces two new additions to the senior leadership team with the appointment of Andy Hodgson, as Singapore's Advisory Services Leader and Tony Chan, as Associate Principal, Southeast Asia's Cities and Planning team. Together they will support the firm in expanding its capabilities across Southeast Asia, furthering the aspirations of the Arup Future Cities Hub.

"Andy and Tony both bring strong experience working in Asia, furthering our mission to deliver the best quality work for clients and shape better cities across the region. They are both solid integrators of multidisciplinary teams and have a long track record of leading sizeable projects and successful teams. We are excited to have them on board." - Marianne Foley, Consulting Sector Leader, Arup

With more than 17 years of experience in infrastructure advisory, Andy specialises in providing strategic counsel to a range of clientele including developers, investors and government institutions. As the Advisory Services Leader at Arup, he will help clients across the region formulate infrastructure strategies, assess technical and commercial viability of investments, unlock enterprise value and set long term plans to achieve economic development aspirations.

He previously served as Director and regional Transport Advisory Lead for Atkins Acuity in Singapore and Southeast Asia. "I am delighted to be joining Arup at such an exciting time for infrastructure development across Asia. Arup is an established leader in delivering large, technically challenging and strategic city-shaping projects globally. I'm really looking forward to building on Arup's reputation with my range of experience in this area.

- **Andy Hodgson,**  
Advisory Services Leader, Arup



**Andy Hodgson,**  
Advisory Services  
Leader, Arup



**Tony Chan,** Associate  
Principal, Cities and  
Planning, Arup

With a strong background of 19 years in sustainable urban development, Tony specialises in leading multidisciplinary teams to efficiently integrate masterplanning and urban design with infrastructure projects. Tony joins from CPG Singapore and was previously a founding member of Arup's Planning, Development and Design team in Shanghai, where he led various award-winning projects. Tony has since played a key role in a number of pivotal projects across the region such as the creation of the Eastern Economic Corridor in Thailand. "With cities facing a myriad of physical and geopolitical challenges, I'm looking forward to help clients define and develop urban projects that can be delivered in an integrated and resilient manner. Arup's commitment to shape thriving, healthy and successful cities is very aligned with what I hope to achieve in this space." - Tony Chan, Associate Principal, Cities and Planning, Arup

"Andy and Tony join an experienced bench of city design leaders. Together with the Future Cities Hub cohort, they will help us to propel the technical and design leadership we have established in Singapore to transform cities across Southeast Asia."

- **Neil Walmsley,**  
Cities & Planning Leader, Arup

Arup has more than 50 years of city-shaping project experience across Southeast Asia. The firm has lent its multidisciplinary expertise to major precinct developments such as Singapore’s Jurong Lake District and Vietnam’s Ninh Thuan masterplan. They continue to shape urban mobility networks and associated transit-oriented developments across the region including Singapore’s Downtown, Thomson-East Coast, and Cross Island Lines,

Bangkok’s MRT Blue Line, Kuala Lumpur’s Klang Valley MRT SSP Line 2 and Greater Jakarta’s Commuter Rail Revitalisation. Their involvement with Singapore’s North-South Corridor, Round Island Route and Rail Corridor, and Jakarta’s MRT Underground Pedestrian Network masterplan is contributing to more walkable, liveable and sustainable cities that can meet current and future priorities.

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- Venue: **Grand Hilton Seoul, Korea**
- Event’s Website Link: <http://solar-storage.leader-associates.com/>



# architect'19

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The Association of Siamese Architects  
Under Royal Patronage (ASA)

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N.C.C. Exhibition Organizer Co., Ltd.  
(NEO)

## Show Date :

April 30<sup>th</sup> – May 5<sup>th</sup>, 2019

## Date :

Tue : April 30<sup>th</sup> (10.00 - 20.00)

Wed, (Labour Day) : May 1<sup>st</sup> (10.00 - 21.00)

Thu - Fri : May 2<sup>nd</sup> - 3<sup>rd</sup> (10.00 - 20.00)

Sat - Sun : May 4<sup>th</sup> - 5<sup>th</sup> (10.00 - 21.00)

- Event Title** : architect'19
- Event Theme** : Green ๑๕ ๓ (Living Green)
- Edition** : 33rd
- Venue** : IMPACT Challenger Hall 1-3  
Bangkok, Thailand
- Exhibit Area** : 60,000 sq.m. (Gross)
- Exhibitor** : 850 Exhibitors
- Visitor** : 400,000 Visitors  
(International & Local)

## SHOW ORGANIZER

The Association of Siamese Architects Under Royal Patronage (ASA) We are a community of around 3,000 members consisting of registered architects working in Thailand, with the balance of membership made up of Thailand architects working overseas, architectural graduates, architecture students, teachers of architecture and retired architects. The Association of Siamese Architects Nationals was established in the year 1934.

N.C.C. Exhibition Organizer Co., Ltd. (NEO) is Thailand's leading exhibition organizer. NEO was previously a department within N.C.C. Management & Development Co., Ltd. which was responsible for expos. In 2004 it officially transformed into an independent expo organizer and event management company. With over a decade of experience in planning and managing more than 100 international trade expos and conventions, NEO has become respected and trusted in Thailand for its professional expertise and reliability in this area. In addition to forging partnerships with other expo organizers from both within and outside the country, NEO has also been organising more and more of its own exhibitions in Thailand and abroad.



## ING seals first green loan for rooftop solar projects in ASEAN



ING has added another 'first' to its growing portfolio of sustainable finance deals in the region by sealing the first green loan in ASEAN that is compliant with LMA/APLMA 1) Green Loan Principles for a portfolio of rooftop solar projects.

This is also ING's first solar rooftop financing transaction in Asia Pacific. ING is the Sole Mandated Lead Arranger for the S\$50 million loan, which will be used to finance an approximately 50MW portfolio of rooftop solar projects. These project will be developed and owned by Sunseap Commercial Assets Pte. Ltd., a subsidiary of Sunseap Group (Sunseap).

These rooftop solar projects in Singapore will range from approximately 100kW to 5MW in size, and will benefit from long-term Power Purchase Agreements with more than 20 international and domestic commercial and industrial corporates such as PSA.

Rooftop solar projects, which tend to be individually small-scale and therefore uneconomical to finance separately, are generally funded on a guaranteed basis. "But in this case we have created an innovative structure to finance this portfolio of rooftop solar projects on a limited-recourse 2) basis and in a single loan facility. The financing is expected to help different industries in Singapore – from education to transportation to technology – offset their carbon footprint," said Erwin Maspolim, head of Utilities, Power and Renewables, Asia Pacific at ING.

Lawrence Wu, president and executive director at Sunseap Group, said, "We are proud to be the first renewable energy company in ASEAN to secure a green loan. ING's financing will enable us to continue generating clean energy to benefit a diverse range of clients."

Facility aligned with Sunseap Green Finance Framework

This S\$50 million loan is on the back of a green finance framework created for Sunseap, for which ING acted as the Green Structuring Advisor. The framework is aligned to a number of global principles.

Under this framework, Sunseap and its subsidiaries will be able to raise green financing instruments (including green loans, green bonds or other debt instruments) to finance or refinance green projects in three eligible areas: renewable energy, energy efficiency and green roof systems. These can include renewable projects including rooftop solar, run-of-river hydro and wind energy; energy efficiency projects for example smart grids, bat-

tery storage and LED lighting retrofits, as well as roof-top greenery projects.

Sustainalytics, a leading global provider of ESG research and ratings, was asked to provide a second party opinion on Sunseap's Green Finance Framework. Sustainalytics' report concluded that the framework is credible and impactful, and contributes to UN Sustainable Development Goals (SDGs) 7: Affordable and Clean Energy and 11: Sustainable cities and Communities.

Herry Cho, head of Sustainable Finance, Asia Pacific at ING, commented, "ING is honoured to partner with Sunseap on this market leading transaction, and we expect this deal to spark off more demand for Green Loan Principles-compliant loans in the renewable energy sector."

Financing renewable energy and energy efficiency projects is crucial for countries in the Asia-Pacific region. It is estimated that by 2025, ASEAN countries will be home to over 715 million people 4), many of whom currently still lack access to modern energy services. Renewables can play a key role in ensuring clean and affordable energy for people across the region.

ING recently became the first global bank to use a science-based approach to steer its business strategy towards meeting the temperature targets set by the Paris Climate Agreement. This initiative, called the Terra Approach, enables ING to measure the bank's lending portfolio against climate-based scenarios. ING will focus specifically on the sectors that are responsible for most greenhouse gas emissions using a customised approach per sector in order to make the most impact.

"Energy is one of the key sectors for ING, and supporting renewable energy projects is clearly aligned with the goals for our Terra Approach," Herry Cho concluded.

1) In March 2018, the Loan Market Association (LMA) and the Asia Pacific Loan Market Association (APLMA) jointly issued the Green Loan Principles which is a voluntary guideline for the constitution of a green loan.

2) Without corporate guarantee from the client.

3) Aligned to the ASEAN Capital Markets Forum's ASEAN Green Bond Standards 2018, and the core components of the International Capital Market Association Green Bond Principles 2018, as well as LMA and APLMA Green Loan Principles 2018.

4) According to a joint report by ASEAN Centre for Energy and International Renewable Energy Association



# DISRUPTION IN FOOD AND SUSTAINABILITY SUMMIT

Investing in a Sustainable Future

MARCH 29, 2018 • GRAND HYATT SINGAPORE

## The Disruption in Food and Sustainability Summit in Summary

The Disruption in Food and Sustainability Summit (“DFSS”) closed on an optimistic note – “There is much opportunity for the growth of innovative food products and alternate proteins here in Singapore”, Senior Minister of State in the Ministry of the Environment and Water Resources H.E. Dr. Amy Khor said in her opening address, setting the upbeat tone for the Summit.

Highlighting Singapore’s reliance on imported food, Dr. Khor said, “Our Singapore Story has been about turning adversity into opportunity” and cited it as a chance for the country to ‘turn its food challenges into opportunities and a strategic advantage’, ensuring food security. Dr. Khor also noted the need to ‘develop and transform our agri-food industry’ for resource-efficient food production.



Senior Minister of State in the Ministry of the Environment and Water Resources H.E. Dr. Amy Khor speaks to homegrown cell-based seafood start-up ShioK Meats. The co-founders, Chief Scientific Officer, Dr. Ka Yi Ling and Chief Executive Officer, Dr. Sandhya Sriram,

launched a first showcase for its Shrimp Dumplings at the DFSS today. The start-up is Asia’s first clean meat company.



*Senior Minister of State in the Ministry of the Environment and Water Resources H.E. Dr. Amy Khor speaking at the opening address for the Disruption in Food and Sustainability Summit.*



*Dr. Andy T. Kusumo, Director of Science & Technology, Monde Nissin*

In his presentation, Dr. Andy T. Kusumo, Director of Science and Technology, Monde Nissin said, “Current food production methods have hit a limit and are putting a stress on the planet...we are in the business of improving the wellbeing of people and our planet and creating sustainable solutions for food security.”

In the panel Green Protein, Meatless Meat and The Retail Dynamics with Meat Products, Mr. Lin urged the need for camaraderie instead of competition in the plant-based and cell-based protein industry, saying, “We need to come together to show the market that we are driving these from niche to mainstream products...we need to collaborate to grow the industry together.”

As part of his closing remarks for the panel, Mr. Kapoor



announced an upcoming Deliveroo partnership with Impossible Foods.

In one of the last panels of the day, Opportunities for Singapore to Establish Itself as a Leader Regionally and Globally in Clean And Cell-Based Meat, Ms. Siu, praised the recent news of Singapore's S\$144 million investment in sustainable

urban food production, saying, "Singapore is the most committed government in the world in terms of its public research funding and putting its money where its mouth is." She also added that she saw the country's potential to 'move quickly' and take point in the clean and cell-based meat industry as it does not have "the baggage of a very strong animal agriculture industry".



## Upcoming GREEN Events:

### ASEAN Wind Energy 2019

1 - 2 April 2019

Ho Chi Minh, Vietnam

### South Korea Renewable Energy Summit 2019

17 - 18 April 2019

Seoul, South Korea

### Architect '19

30 April - 5 May 2019

IMPACT Challenger Hall 1-3, Bangkok, Thailand

• [www.asa.or.th](http://www.asa.or.th)

### 8th World Climate Congress

10-11 May 2019

Bangkok, Thailand

• <https://climatecongress.conferenceseries.com>

### Intersolar Europe 2019

14-17 May 2019

Munich, Germany

• [www.intersolar.de/de/home.html](http://www.intersolar.de/de/home.html)

### Europe Solar +

### Energy Storage Congress 2019

23-24 May 2019

Rome, Italy

### Future Food Asia 2019

03-04 June 2019

Singapore

• <https://futurefoodasia.com/ffa2019>

### Ecosperity Week 2019

04-07 June 2019

Singapore

• [www.ecosperity.sg/en/2019-conference.html](http://www.ecosperity.sg/en/2019-conference.html)

### 5th Annual Global Solar +

### Energy Storage Congress & Expo 2019

24-25, June 2019

Grand Hilton Seoul, Korea

### Smart Cities & Buildings Asia 2019

04-06 September 2019

Marina Bay Sands Expo, Singapore

• [www.scb-asia.com/en-gb.html](http://www.scb-asia.com/en-gb.html)



# YOTTA'S EMERGING TECHNOLOGIES

DLT, AI, Machine & Deep Learning, IoT enabled and cloud systems



Yotta Laboratories is a UK based technology company with a global reach specializing in new and emerging technologies such as DLT, Artificial Intelligence, Machine and Deep Learning, IoT enabled systems and cloud systems such as edge and Fusion.

The next wave of technology innovation is already here with new applications transforming the way we live, work, and travel.

Artificial intelligence isn't just about state-of-the-art technology. It's also about people. Smart, curious people in pursuit of "breakthroughs" that will solve complex problems. A Yotta researcher working tirelessly to accelerate discovery. Yotta identifying new ways to fight malware. A team of Yotta scientists using deep learning.

“

The past five years have been very exciting and it's a great pleasure to announce our expansion into the ASEAN region, we view Singapore as being a fantastic location for Yotta, we have the right products and services, a team of experts in place and the flexibility to provide excellent customer service.

**Gary Spence,**  
CEO

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Yotta Laboratories have conducted extensive research where new and emerging technology will transform the way Governments, Corporates & Businesses operate at present. These cover many types of industries and sectors. Some examples include:

- Pharmaceutical Provenance
- Agriculture
- Processed food
- Logistics
- Warehouse stock control
- Motor Industry
- Ticket sales
- Authentication
- IP / Digital rights
- Online Gaming
- Maintenance contracts
- Vehicle servicing
- Fuel payments hot spots
- Cashless systems
- Media
- Medical Records
- Prescriptions
- Private health
- Disease collection
- DNA Records
- Dental
- Sports events
- Music events
- Fraud management
- Insurance
- Auto payments
- Telematics
- Smart Home / Cities

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# KONE highlights the role of vertical transportation in ensuring better urban flow in Asia-Pacific's smart cities



KONE, a global leader in the elevator and escalator industry, will be presenting the latest in vertical transportation technologies at the 8th Annual Vertical Cities 2019 set to take place on 6th – 8th March 2019 at Marina Mandarin Singapore.

Amidst the rapid urbanisation and buzzing commercial activity in the Asia Pacific region, building upwards presents a practical and sustainable approach to avoid the many issues associated with increasing urban sprawl. With the United Nations predicting 70% of the world population will opt to live in an urban environment by 2050, construction of taller buildings will need to be build to support it.

Vertical Cities will bring together all stakeholders involved in the designing of supertall and mega tall buildings from planning, designing, building, operating and sustaining. The conference will be a platform for sharing practical insights, latest innovations, real world case stories, and

best practices around high-rise construction projects and how to ensure the building of a sustainable vertical future .

KONE's experts in smart building technology will speak about ways to create efficiencies in high-rise construction through vertical transportation.

One innovation proudly originated by KONE is the carbon-fiber rope which replaced traditional steel rope, the KONE UltraRope™. Conventional buildings have a construction height limit of about 500 meters due to the limitations imposed by steel ropes. Taller buildings meant longer and heavier ropes which required more energy consumption, running on limited speed. KONE's UltraRope™, based on superlight technology, considerably reduces energy consumption and maintenance costs, and doubles the potential height of future buildings.

Another KONE innovation is the JumpLift™, which cleverly uses the lift shaft that is already in place, during the construction phase of vertical buildings. It is essentially a self-climbing construction time elevator that moves construction workers and materials throughout the building; allowing for faster construction and lower overall costs. With it being situated inside the building, it allows for all-weather operation and ensures the earlier availability of a permanent elevator.

KONE is a market leader in the new equipment segment and seizing opportunities in the modernisation and maintenance. In Singapore, KONE has just been awarded an order to supply lifts and escalators for stages four and five of the Thomson-East Coast Line of the Singapore's mass rapid transit system and pedestrian overhead bridges. Another major KONE project in Singapore is at the iconic Marina Bay Sands

**About KONE:** At KONE, our mission is to improve the flow of urban life. As a global leader in the elevator and escalator industry, KONE provides elevators, escalators and automatic building doors, as well as solutions for maintenance and modernization to add value to buildings throughout their life cycle. Through more effective People Flow®, we make people's journeys safe, convenient and reliable, in taller, smarter buildings. In 2018, KONE had annual net sales of EUR 9.1 billion, and at the end of the year over 57,000 employees. KONE class B shares are listed on the Nasdaq Helsinki Ltd. in Finland.