

## Build News



Last Mile
Connectivity and
Quiet Living at the
North-West District
Singapore

Cost Estimating in Construction Projects: Is it an Art, Science or both? Build Tech Asia 2021
Panel Discussion:
Driving Sustainability
through Digital
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Practices

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**27**Congratulations,
Eldan Law!

# Last-mile Connectivity and Quiet Living at the North-West District Singapore

Dr Sussie Ketit, President Singapore Institute of Building Limited

Public transport is an important service for addressing congestion and improving environmental sustainability in cities while addressing the last-mile connectivity issue lies at the core of promoting the usage of public transport.

Singapore's Ministry of Transport aims to increase the share of public transport usage in peak hours to 75% by 2030. To achieve this goal, the Singaporean government launched the Bus Service Enhancement Programme (BSEP) in 2010 to expand the bus fleet by 35%, which was expected to improve the last-mile connectivity between the residential communities and the mass railway transits (MRT).

Meanwhile, public bus also constitutes a significant proportion of road transportation, which is one of the major sources of noise pollution in urban environments. Therefore, the intensification of public transport services in residential communities may potentially impact the quiet living environment in Singapore. In order to evaluate the economic benefits of the public bus service and to investigate its impact on quiet living environment in Singapore, a group of NUS researchers led by Dr. Fan Yi and Dr. Wan Xinwei Wayne, collaborating with mayor Dr. Teo Ho Pin of the North West District. conducted a research of the new regional buses introduced in the North West District. They focused on a new bus route No. 972, which was introduced in November 2013 to connect the Bukit Panjana MRT station and the CBD. Their research answered two questions: First, does the improvement of public bus service increase the value of HDB units? Second, are the economic benefits brought by the public bus service partially offset by the noise it generated?



They found that after introducing bus No. 972, around 44% of the HDB buildings in Bukit Panjang are now closer to bus stops connecting the CBD. The housing price of HDB units within 100 meters of the bus route increases by 1.3% compared to HDB units within 100 to 200 meters of the bus route. By improving the last-mile connectivity, the peak-hour usage of public transport in the community is expected to increase, and the carbon emission is expected to reduce.

Meanwhile, by closely monitoring the potential impact of intensified public bus service on noise complaints, they find that living closer to the bus route for every 100 meters increases noise complaints by around 10 percentage points, and the effect is more severe on medium floor levels (5th-8th floors) and near bus stops (within 100 meters). The authors also link noise with housing prices and discover that bus noise offsets 17.8% of the economic benefit from convenience.

This research bears important policy suggestions on future transit-oriented developments (TOD) in Singapore. Improving the accessibility to mass public transport involves a significant amount of government investment. while the associated increases in land values are also expected to sustain the future TOD. However, as demonstrated in this research. the noise externalities of public transport may offset the increases in land values and lead to lower tax revenues in the future, which could impair the financial sustainability of TOD. The authors emphasize the importance of considering noise impact in coordinating TOD allocation and designing the route of public transport to minimize the amount of exposure to noise.

The academic article related to this research, "Public Transport, Noise Complaints, and Housing: Evidence from Sentiment Analysis in Singapore", was awarded E-house Best Paper Award at the Global Chinese Real Estate Congress and is recently published at the Journal of Regional Science in 2021 (https://onlinelibrary.wiley.com/doi/ful l/10.1111/jors.12524).

#### Cost Estimating in Construction Projects: Is it an Art, Science, or Both?

Amila Gamage , Sihela Consultants

Cost estimation is important for any construction project. It can make your project successful or unsuccessful. This is where it is vital to estimate your project cost at different points in time and throughout the project. Anyway, is cost estimating an art or science? We can see discussions on this topic with different views.

While there are mathematical formulas, drawings and calculations used together with project specifications and design concepts to support that cost estimation as a science, where

many will agree, we cannot deny the concept that says cost estimating is an art.

Without experience in construction methods and without the ability to visualize the completed project or work activity being estimated, a project estimator will not come up with an accurate estimate. The estimate depends on the skills of the cost estimator although he uses price data from various sources. This is why cost estimations for the same project are not the same when it is done by different estimators. The cost estimates also depend on the personal judgments and opinions of the estimator making it an art.

Therefore we can say that cost estimating for construction projects is both an art and a science. An effective estimator knows how to visualize a project design with an understanding of the construction methods. A good estimator is with a better understanding of the conditions that increase or decrease the future project costs.

## Cost estimates at different stages

Construction estimates are created at different points in time throughout the construction project. It starts at the inception stage by preparing the preliminary estimate to determine whether the project is economically viable or not.

During the design phase, a detailed cost estimate is prepared, which is maintained as the developer's or owner's budget.

During the tender stage, the contractors will prepare their estimates for bidding for the same project. There will be other cost estimates during the construction stage to check the feasibility of changes to the contract. All these cost estimates are not the same, and the ratio of art and science is different too in each phase.

## Impact of quantity take-off

When the project is in the inception stage where there are no developed drawings or designs, the preliminary estimation depends more on the art part as well. With limited details available, the estimator has to imagine and visualize the design concept to come up with his cost estimation. The quantity takeoff used for his preliminary estimate depends on his ability to visualize as well.

When the detailed design is available, the estimation will be more accurate and detailed. With detailed designs and more information available, the art part of cost estimation will reduce while it is more on science. However, the estimator still needs to understand and visualize the design which the architect and design team has planned.

#### Pricing-is it an art?

Cost estimating requires both quantity takeoff and pricing. The accuracy of cost estimation depends not only on the available information but also on the knowledge and experience of the estimator. There are many instances that we see under-estimated projects or overestimated projects. Even though the quantity takeoff for the project is accurate, if the pricing is underestimated or overestimated or simply, it is not accurate, the overall project estimate is not accurate. It will give false information to the project team. This can also lead to unsuccessful project delivery.

Project pricing is an art. The estimator needs to know project requirements, specific conditions, and even construction procedures before he includes prices for each activity. When there is no historical or current price data available, the estimator requires to use his skills to come up with an estimated price which is sometimes referred to as an educated guess.

Finally, project markup, which is part of the estimation process requires an understanding of the company policy and risks involved. It all depends on the expertise of the cost estimator. Therefore cost estimating for construction projects not only depends on scientific data and methods. It also depends on the estimator's skills, knowledge, and experience. Cost estimating is not only an art or science. We can say it is both an art and a science.

Amila Gamage is an Engineer and Quantity Surveyor with over 17 years in the construction industry specializing in contract administration. Her experience expands from high-rise building projects to civil engineering projects where she has demonstrated her capability in contract management and tendering. She is the founder and contracts manager at Sihela Consultants where she offers quantity surveying services, consultancy, and training solutions for her clients in Singapore and overseas including the US. Australia and New Zealand. As an ACLP certified trainer and a lecturer for various educational institutes and organizations in Singapore, India, and Sri Lanka, she helps learners to gain industry knowledge on relevant topics including Facilities Management and Contract Administration.





#### **Continuing Professional Development**

A key feature of the SGBC Green Mark Professional Qualification Scheme is the establishment of a Continuing Professional Development (CPD) framework for all Green Mark APs. Through a host of meaningful programmes and activities, Green Mark APs are able to remain abreast of industry trends and stay ahead of sectoral developments.

Green Mark AP certifications are renewed annually upon fulfillment of the renewal requirements.

Renewal requirements for Green Mark AP and Green Mark AP (FM)

Renewal requirements for Green Mark AAP and Green Mark AAP (FM)



#### About the scheme



Upcoming **CPD** activities



Renewal Requirements

Questions

#### **Accrediting Green Building Professionals**

The SGBC Green Mark Professional Qualification Scheme succeeds the BCA Green Mark Specialist programme and active in the built environment sector.

#### **Certification Types**

#### Green Mark AP

The Green Mark AP certification qualifies industry professionals with the knowledge and expertise needed for the

- Green Mark Accredited Professional (Green Mark AP)
- Professional (Green Mark AAP)

#### Green Mark AP (FM)

The Green Mark AP (FM) certification maintain and operate green buildings.

- Green Mark Accredited Professional (Facilities Management)
  [Green Mark AP(FM)]
  ■ Green Mark Advanced Accredited
  Professional (Facilities Management)
- [Green Mark AAP(FM)]

#### 39th ANNUAL GENERAL MEETING

The 39th ANNUAL GENERAL MEETING of the Institute held on Wednesday, 30th September 2020, on the virtual platform, ZOHO. The meeting was called to order at 8.00 pm sharp by President; Dr. Victor Ong.

With the due process of nomination paper and votes (unless uncontested), the following member was duly elected to serves on the Board of Committee for 2020/2022:

## BOARD OF DIRECTORS 2020-2022



President
Dr.Sussie Ketit
sussie@sibl.com.sg



1st Vice President Shane D Ward 1vp@sib1.com.sg



2nd Vice President Farizan d'Avezac de Moran 2vp@sibl.com.sg



Honorary Secretary Ho Wee Leong hon.secretary@sibl.com.sg



Asst. Hon. Secretary

Dr. Parvathy

Subhadra

paru@greeninfuture.com



Honorary Treasurer Moong Khai Chee khaichee.moong@gmail.com



Asst. Hon. Treasurer

Ng Pin Yuan

pinyuan\_99@yahoo.com



Director

Dr. Keow Yeong Ming

keowym@gmail.com

#### **BOARD OF DIRECTORS** 2020-2022



Director Ar.Tan Szue Hann



Director Vanessa Tang



Director Vineet Shrivastava



Associate Director Siddhi Suresh Nevkar



Associate Director Hossain Mohammad Sumon



Independent Director, Lead Auditor Thomas Loh Yong Hwee



Independent Director, In-House Auditor Ivan Teo Leon Shen



Honorary Adviser Hon. FSIB Dr. Teo Ho Pin

## BOARD OF DIRECTORS 2020-2022



Immediate Past President Dr. Victor Ong Chee Wee



Past President 2010-2018 Mr.Peter Chua Kwee Hock



Past President 2007-2010 Mr.Lim Meng Tong

#### SIBL SUB COMMITTEE 2020 - 2022

Commercialisation Strategy Committee (CSC)
 Chairman: Mr.Moong Khai Chee
 Members: Mr.Shane D Ward,
 Mr.Ng Pin Yuan, Ms.Danna Er

3. Enterprise Membership Services Committee (EMSC)

Chairman: Mr.Ivan Teo

Members : Mr. Vineet Shrivastava, Mr. Shane D Ward,
Mr. Hossain, Mr. David Shanmugam

4. Media, Marketing & Industrial Relationship Committee (MM & IRC)

Chairman: Ms. Shirley Chan

Members : Mr.Shane D Ward , Mr. Vineet Shrivastava,
Ms. Vanessa Tang, Ms. Amila

5. Membership Services Committee (MSC)

Chairman: Mr.Shane D Ward

Members: Mr.David Shanmugam, Mr.Ho Wee Leong

Mr.Ivan Teo

#### SIBL SUB COMMITTEE 2020 - 2022

6. Memorandum & Association Committee (M & AC)

Chairman : Dr. Sussie Ketit

Members: Mr. Vineet Shrivastava, Mr. Ho Wee Leong

7. Environment and Sustainability Committee (E&S)

Chairman: Ms.Farizan

Members : Ar.Tan Szue Hann, Dr.Parvathy,
Ms.Vanessa Tang

8. Corporate Social & Event Committee (CS & EC)

Chairman: Dr.Sussie Ketit

Members: Mr. Vineet Shrivastava, Mr. Thomas Loh

9. Young Member Committee (YMC)

Chairman: Ms.Siddhi Members: Mr.Ng Pin Yuan

#### SIBL EXTERNAL COMMITTEES REPRESENTATIVES 2020 - 2022

Construction Industry Joint Committee (CIJC)

BCA - CIJC Committee

1. Dr. Sussie Ketit

- 2. Mr.Shane D Ward
  - 3. Ms.Farizan
- 4. Mr. Ho Wee Leong
- 5.Mr.Moong Khai Chee

Constructing Our World Conference and 40th Anniversary Celebration

- 1. Dr. Sussie Ketit
- 2. Mr Shane Ward
- 3. Ms. Farizan d'Avezac Moran
  - 4. Mr. Ho Wee Leong
  - 5. Mr. Moong Khai Chee
    - 6. Dr. Parvathy
  - 7. Dr. Keow Yeong Ming
    - 8. Ms. Vanessa Tang
  - 9. Ms. Siddhi Suresh Nevkar
    - 10. Ms. Rohaidah

#### SIBL EXTERNAL COMMITTEES REPRESENTATIVES 2020 - 2022

#### Singapore Green Building Council SGBC-SIBL (2 Reps)

1. Mr. Vineet Shrivastava

2. Ms.Siddhi

#### SPRING Technical Committee (2 reps)

1. Dr. Victor Ong

2. Mr. Moong Khai Chee

#### BCA BuildSG Tripartite Committee (2 reps)

1. Mr. Vineet Shrivastava

2. Ms. Vanessa Tang

#### Smart FM Conference -yearly with BuildTech Asia (3 reps)

1. Mr. Vineet Shrivastava

2. Ms. Danna Er

3. Mr.David Shanmugam

4. Ms. Amila

#### BCA Manpower and Industry Development TaskForce (FM)

1. Dr. Sussie Ketit

2. Ms. Farizan d'Avezac de Moran

3. Mr. Darren Tang

#### Membership Admissions - New Members/Associate Members

S/N	Name	M/No.	Membership Class	Company	Title/Position
1	Moorthy Perumal	326570	Member	Oxley Holding Ltd	Construction Manager
2	Chun Sin (Deckson) Ang	372577	Member	Mott Macdonald Singapore Pte Ltd	Senior Engineer
3	Kim Hwee Alan Goh	372793	Member	CPG Facilities Management Pte Ltd	Deputy Chief Executive Officer
4	Philip Kwang	374336	Member	Facade Global Master Pte Ltd	Managing/Director
5	Shaju	376437	Associate Member	Hong Dat Engineering Pte Ltd	Assistant General Manager
6	Marianne Ang	376482	Member	Marine Parade Town Council	Quality Service Manager
7	Thamaraiselvan Natarajan	378234	Associate Member	Hong Dat Engineering Pte Ltd	Project Manager
8	Keith Vincent	391080	Member	Land Transport Authority	Principal Assistant Project Engineer
9	Hualan Wong	391994	Member	Ginlee Construction Pte Itd	Contracts Manager
10	Karthick Muthu	398040	Associate Member	Hong Dat Engineering Pte Ltd	BIM Modeller
11	Sarker Nandan Chandra	398199	Associate Member	Joydom Engineering Pte Ltd	Operation Manager
12	Samsudeen Sheik Abdul Nazeer	425533	Associate Member	Hong Dat Engineering Pte Ltd	Electrical Engineer
13	Nora Tan	429420	Associate Member		

#### Membership Admissions - Affiliate Members/Enterprise Members

S/N	N a m e	M/No.	Membership Class	Company	Title/Position
1	Vijay Shinde	370822	Affiliate Member	Jacobs International Consultants Pte. Ltd.	Sr. Project Manager
2	Andre Chia	380825	Affiliate Member	JA Signature (Pte. Ltd.)	Director
3	Jiayun Summer Foo	385598	Affiliate Member	AIA Singapore	Financial Service Consultant
4	Jun Hao Seah	395619	Affiliate Member	Simple-Group Private Limited	Director
5	Jayden Lek	398000	Affiliate Member	JA Signature (Pte. Ltd.)	Co-Founder
6	Chris Yio	378228	Enterprise Member	Procore Technologies	Regional Sales Director ASEAN
7	Teo Ho Pin	447400	Enterprise Member	Building & Estate Management Alumni	President
8	Cindy Chong	455073	Enterprise Member	iClick Media Pte Ltd	General Manager
9	Chua Eng Eng	465586	Enterprise Member	King Wan Corporation Limited	Managing Director
10	Jonathan Tan	466206	Enterprise Member	Silver Eagle Construction Pte Ltd	Chairman

Build Tech Asia 2021 Panel Discussion: Driving Sustainability through Digital Construction Practices

By Vanessa Tang, AcePLP

The Singapore Institute of
Building Limited co-hosted a
panel discussion together with
the Association of Women in
Construction around the topic of
Driving Sustainability through
Digital Construction Practices.
The session was open and closed
by Emily Tan (President,
Association of Women in
Construction) and Dr. Sussie
Ketit (President of Singapore
Institute of Building Limited).

The roadmap to our sustainability goals is laid out in the Singapore Green Plan, which is a whole-of-nation movement to advance Singapore's national agenda on sustainable development. The Green Plan charts ambitious targets over the next 10 years, positioning us to achieve long-term net-zero emissions.

Specifically, for the Built Environment, there is a target of 80-80-80 by the year 2030, referring to 80% of our buildings being green, 80% of all new buildings to be Super Low Energy, and 80% improvement in energy efficiency for best-in-class green buildings.

The panel featured 3 speakers from the Built Environment and IT sector: Farizan d'Avezac de Moran, Senior Partner at GreenA Consultants and Vice President at Singapore Institute of Building Limited; Architect Theodore Chan, Senior Director at CIAP Architects; and Mr. Lau Shih Hor, Chief Executive Officer of Elixir Technology and the Smart Nation Chapter Chairman of SGTech. The panel discussion was moderated by this author.

In the backdrop of our national sustainability movement, we talked about how businesses should evolve to remain relevant and competitive.



The speakers covered a wide range of topics around sustainability and digitalization. As the sustainability revolution expands, accelerates, and disrupts, it is forcing industries to reassess themselves with unwavering honesty to deliver a future that few imagined. Keeping the digital parallel in mind can help guide them to move quickly and boldly through the coming transformation.

Theodore spoke about the social responsibility of businesses and why there was a need for businesses to be concerned with more than just the bottom line. He pointed out that if buildings were better designed to take advantage of natural ventilation, there would be less energy use with air-conditioning. This is significant given that buildings account for more than 20 percent of Singapore's carbon emissions, and greener buildings are an important part of Singapore's climate change mitigation strategy.

Farizan brought into conversation her perspective on green building consultancy. With sustainability being the key concern in purchasing behaviour, businesses that cannot connect with today's consumers are the ones that will not stay relevant. To become sustainable, businesses need to work as a system, understand the underlying mechanics and adapt them to the business model.

Mr Lau, who was also the keynote speaker for the segment, addressed questions from the audience regarding automation in construction. As companies embrace automation and artificial intelligence, it is inevitable that some jobs will be created or enhanced, while some others are likely to go away. On this topic, the audience was active and participative, asking if it was possible to someday see zero workers on construction sites.

Both sustainability and digitalisation are revolutions that require businesses to understand the underlying mechanics and adapt to the new business model. It is a challenge that requires companies to take a radical rethink rather than an incremental approach.

Like the digital revolution, the pivot to sustainability is shifting profit pools to open multibillion-dollar industries, and it will benefit many companies to plan adequately for such huge opportunities. According to a 2018 Nielsen study, sustainability-linked consumer products now grow nearly 6 times faster than other brands, and 73% of global consumers say they would change their habits to reduce environmental impact.

Digitalisation transformed operations across industries and sustainability requires the same.

Data from the digitisation process helps us better evaluate the impact of our actions, which can translate into insights for sustainability agenda. It also enables better sustainability reporting.

Sustainability can serve as a catalyst for many companies to integrate digital technology into all areas of their business. As the pressure for environmental responsibility mounts, digital technologies such as artificial intelligence (AI), predictive analytics, machine learning (ML), and the internet of things (IoT) can help organizations effectively achieve sustainability goals.

The webinar is available to watch on demand at https://buildtechasia.eventxtra.com/. Please sign up to obtain your personal login ID here: https://bit.ly/3iCZEOG

Vanessa Tang is an SIBL Director and a leading BIM Advisor for guiding firms in the Built Environment to digitise and enhance their Integrated Digital Delivery workflows. She is a Corporate Development Director at AcePLP which offers Building Information Modelling, Virtual Design and Construction, reprography and digitisation services. Her clients include government agencies. consultants and contractors working on Singapore's Built Environment projects. She works with Autodesk, Bentley and Trimble to deliver technological and information management solutions for her clients. She also helps to set up BIM teams and groom future talent for the Built Environment.

Have a look behind the scenes at Build Tech Asia 2021, in its second year as a virtual exhibition after last year's inaugural digital event. The event gathers companies and professionals in the built environment sector to discuss trends, insights, and developments to accelerate the adoption of industry 4.0 that sees the workforce using the latest smart technologies.



SIBL Vice President Farizan d'Avezac Moran arrives at SPH News Centre and performs the TraceTogether Safe Entry.



Former Mayor of the North West District of Singapore Dr Teo Ho Pin at a radio interview with DJ Rachel Kelly on MoneyFM 89.3.



From left to right: Chua Wee Phong, Chief Executive, Markets,
Constellar Holdings; Dr Sussie Ketit, SIBL President; Shane Ward,
1st Vice President of SIBL; Shirley Chan, Business Director,
Constellar Holdings.



From left to right: Former Mayor Dr Teo Ho Pin; U Tin Muang Niang,
Vice President of the Myanmar Construction Entrepreneurs Association
(MCEF); Mr Tan Kiat How, Minister of State, Ministry of
Communications and Information & Ministry of National Development;
Dr Sussie Ketit, SIBL President; Mr Chua Wee Phong, Chief Executive,
Markets, Constellar Holdings



From left to right: Dr Sussie Ketit, SIBL President; Shane Ward, 1st Vice President, SIBL, Mr Tan Kiat How, Minister of State, Ministry of Communications and Information & Ministry of National Development, Farizan d'Avezac Moran, 2nd Vice President, SIBL, Mr Chua Wee Phong, Chief Executive, Markets, Constellar Holdings.



Key speakers including entering the SPH News Centre, including Mr Tan Kiat How, Minister of State, Ministry of Communications and Information & Ministry of National Development, with former MP Dr Teo Ho Pin.



Dr Sussie Ketit, SIBL President, delivering the Opening Address at Build Tech Asia 2021.



An MOU was signed at Build Tech Asia 2021 between SIBL and the Myanmar Construction Entrepreneur Federation (MCEF).

## Congratulations, Eldan Law!

We are delighted to announce that SIBL Enterprise Member Eldan Law is ranked First Tier in Doyle's Guide Leading Construction Litigation & Disputes Law Firms – Singapore, 2021 and Second Tier in Doyle's Guide Leading Construction, Infrastructure & Major Projects Law Firms – Singapore, 2021.

Eldan Law Partner, Danna Er, is also recognised as a Recommended Lawyer in Doyle's Guide Leading Construction Litigation Lawyers - Singapore, 2021. This is a recognition of Danna's outstanding work in construction disputes by her clients, peers, and relevant industry bodies. Danna contributes regularly to SIBL events as a speaker.

SIBL extends its warmest congratulations to Eldan Law and Danna Er.



Leading Construction Disputes, Litigation & Arbitration Lawyers - Singapore

Recommended Lawyer

<u>Danna Er, Partner</u>
Arbitration, Litigation and Alternative Dispute
Resolution / Construction & Engineering



ELDAN LAW

## HAVE SOMETHING TO TELL US? WE'D LOVE TO HEAR FROM YOU! Singapore Institute of Building Limited

Celebrating 40 years