

Construction Industry Council

Committee on Productivity

Meeting No. 003/17 of the Committee on Productivity was held on 08 September 2017 (Friday) at 2:30pm at Board Room, 38/F, COS Centre, 56 Tsun Yip Street, Kwun Tong, Kowloon.

Present:	Christopher LEUNG	(KYL)	Chairman
	WONG Sze-chun	(SCW)	
	Vitus NG	(VN)	for Permanent Secretary for Development (Works)
	Kwok-Kwan NG	(KwKN)	
	Ivan Chin-shing FU	(FI)	
	KWAN Kai-sing	(KSKn)	for Permanent Secretary for Transport and Housing (Housing)
	Tommy NG	(TyN)	Association of Consulting Engineers of Hong Kong
In Attendance:	TSE Kam-leung	(TKLg)	Architectural Services Department
	Victor CHAN	(VCh)	Buildings Department
	Thomas NG		(Presenter)
	Kelwin WONG		(Presenter)
	ZHANG Xueqing		(Presenter)
	ZHANG Limin		(Presenter)
	Ivan SHAM		(Presenter)
	Albert CHENG	(CTN)	Executive Director, CIC
	LAI Kin-pui	(KPL)	Government Seconded
	James WONG	(JsW)	Manager - Research & Development
	Terry LAM	(TyLm)	Manager - Research & Development
	Carol DU	(CD)	Officer – Research & Development
	Apologies:	PAN Shujie	(PSJ)
Ringo SHEA		(RSh)	Hong Kong Federation of Electrical and Mechanical Contractors
Vincent CHEUNG		(VnC)	Hong Kong Construction Association
Pauline PANG		(MTP)	Buildings Department

PROGRESS REPORT

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3.1 Confirmation of Progress Report of the Previous Meeting

Members confirmed the notes of Meeting No. 002/17 for the Com-PRO (Paper CIC/PRO/R/002/17) without amendment.

All to Note

3.2 Matters Arising from the Previous Meeting

For item 2.3: The consolidated comments from the Members were sent to Dr Wei PAN on 4.9.2017 for his response and revision of the report where necessary. It was expected to receive Dr PAN's response and revised draft final report in early October.

Dr Wei PAN

For item 2.4: The Secretariat has arranged HKPC to carry out site trial of their recommended measures (including re-bar fixing method) in the CIC training centres.

For item 2.5: The Secretariat has arranged Prof SL Chan to deliver a talk to promote the use of design method and software developed under the research project to ArchSD's staff on 11.9.2017.

For item 2.7: With the endorsement by the Members, Secretariat would proceed to prepare contract document for the proposed Consultancy "A Feasibility Study of Lego-inspired Construction with Bendable Concrete" leading by Prof. Victor Li from University of Michigan.

Secretariat

For item 2.10: The finalized work plan and budget have been submitted to Com-ANF in August for approval.

3.3 **Consultancy Service for Assessing the Performance of the Hong Kong Construction Industry, Key Performance Indicators (KPI): An International Comparison Study (Initiated by Com-PRO)**

Prof. Thomas NG from HKU presented the findings of the Draft Final Report received in August. After two rounds consultations with Industry Stakeholders, Prof. NG has proposed strategies based on the past trends of the KPIs mainly in productivity, site safety, manpower and construction cost, etc.

The Chairman queried the data source. Prof. NG responded the data were all obtained from the public domain and were comparable with each other among different territories.

CTN suggested that the Researcher was better to take Gross Floor Area (GFA) into consideration when setting productivity measurements. HKU noted that and would further research on the feasibility to adopt GFA into the measurements.

FI pointed out the data related to construction manpower should cover all aspects of the CIC training output for more precise and reasonable results. HKU would follow to collect data from the CIC and revise the results accordingly.

Suggested by the Chairman, the Draft Final Report would be circulated to the Members for further comments after receiving amendment from the Researcher.

Secretariat

3.4 **Benchmarking the Construction Trade Productivity in Hong Kong (Initiated by Com-PRO)**

Dr. Eric ZHANG from Hong Kong University of Science and Technology (HKUST) presented the research findings of the project which started in February 2015. HKUST had finished data collection across different territories including (i) Hong Kong, (ii) Singapore, and (iii) Mainland China via different approaches to measure and

benchmark the productivity of critical trades.

CTN questioned the data source for the construction workers number cited in the research. Dr. ZHANG explained that the data used in calculation were extracted from the site dairy provided by the contractors corresponding to the construction output.

KSKn opined that the prefabricated rebar mesh in other territories was not as large scale application as it was in Hong Kong. Therefore, when counting the Bar Bender working output, it was suggested to include whether the prefabricated rebar mesh was used as an influential factor. HKUST responded that they would pay attention to it when calculating and checking the results.

The Chairman suggested the Secretariat to circulate the Final Report to the Members for more comments after review.

Secretariat

3.5 **Full-scale Testing and Numerical Analysis of Innovative Measures for Minimizing Infiltration and Internal Erosion in Soil Slopes due to Leakage from Pressurized Buried Pipes**

Prof. ZHANG Limin from HKUST presented the research findings which was target to be completed by the end of September 2017. Prof. ZHANG invented an innovation water pipe protection method by wrapping various geo-materials, e.g. Geo-Membrane, Geo-textile onto the buried pipe to protect the soil slope from failure caused by water leakage.

The Chairman asked whether the Researcher would draft a design guideline for users adopting on the new technique. Prof. ZHANG answered that the guideline was under preparation as it would be one of the deliverables of the Study.

VCh asked about the maintenance requirement and pointed out that the materials durability could significantly affect the new method's performance. Prof. ZHANG agreed and explained that the innovative

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method would help to identify the leakage location easier. For the durability, it was suggested to use two layers of Geo-materials to provide better protection although the design life for one layer was assessed to be adequate.

Prof. ZHANG would further revise the Final Report before submitting it to Task Force on Research for final endorsement through the Secretariat.

**Prof.
ZHANG
Limin**

3.6 Research Proposal on Innovative backfilling materials for pavements in Hong Kong

Dr. Ivan SHAM from NAMI presented the revised Research Proposal on a potential replacement for the traditional backfilling materials (e.g. soil) by a flowable backfilling foamed concrete and addressed Members' comments provided in last meeting.

Members concerned about the business plan collaborating with ITF including but not limited to the IP ownership, the licensing fees and royalties. SCW suggested that the licensing fees and royalties could be exempted for local applications and levied as usual for overseas. NAMI clarified that IP and the fees would not be a problem if the CIC would subsidise the whole project, otherwise, an additional liaison with its Board would be required.

The Chairman recommended NAMI to review the suggestions internally on the Business Model raised by the Members before the Committee endorsing the proposal.

NAMI

3.7 Investigating the Potentials of Implementing Robotics and Automation in the Context of Large-scale Housing Development for Hong Kong (Proposal for project extension and Phase 2A Supplementary)

Prof. Thomas BOCK from Technical University of Munich conducted a research on tailor made Robotics and Automation solutions for Hong Kong Construction Industry. An additional task named "Phase 2A – In

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depth case study” was proposed identifying the real needs on local construction sites at an amount which was originally specified to be a tax payment on top of the remuneration for the performance of the R&D tasks. The tax was exempted under the German Laws as CIC is a statutory body in Hong Kong.

With Com-PRO’s endorsement, the project would be extended by five months to seventeen months till the end of April 2018 to enhance the practicality of the research results. The Secretariat would follow up to prepare the contract addendum accordingly.

Secretariat

3.8 Compilation of Productivity Roadmap for the Hong Kong Construction Industry

The Committee has commissioned Dr. Wei PAN from the University of Hong Kong to conduct a Study with the aim to improve the productivity and efficiency from December 2015 to June 2017. Based on the strategies and recommendations generated from the aforesaid Study, an additional phase for drawing up a pragmatic and effective productivity roadmap was proposed, which was targeted to be finished in another four months.

Concerning that the Draft Final Report was still under revision to address the comments from the Members, HKU would further fine tune the draft Final Report before submitting the additional phase proposal for Member’s endorsement.

Dr. Wei PAN

3.9 Any Other Business

The Innovation Award 2017 has received very encouraging response from the Industry. A total of 124 applications in three main Categories were received from both the local and the overseas submitting innovative ideas for application in the construction industry. Members were invited to attend the award ceremony to be held on 15th December 2017.

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A technical visit to NAMI and Hong Kong Science Park on innovative construction materials and construction robotics application was scheduled on 10th Oct 2017. Members were welcome to join.

The Committee agreed that due to the differences in legal systems between Hong Kong and the US, for the Study “*Investigating the Potential Application of 3D Printing Technology for Construction Supply Chains in Hong Kong*”, legal advice would be sought for preparing the contract document with the University of Maryland.

Secretariat

3.10 Next Meeting 004/17

The next meeting was tentatively scheduled in December 2017. The Secretariat would inform Members when the meeting date was confirmed.

All to Note

The meeting was adjourned at 5:30 pm.