



AN INTERVIEW with Wai Chi-sing of the Hong Kong Government



WAI CHI-SING, PERMANENT SECRETARY FOR DEVELOPMENT (WORKS)

WAI CHI-SING is the Permanent Secretary for Development (Works) of the Hong Kong Special Administrative Region Government and has pioneered the introduction of NEC3 contracts for public works in Hong Kong. He has a civil engineering degree from the University of Hong Kong, a master's degree in transportation engineering from the Purdue University USA and professional qualifications in civil and geotechnical engineering. He was appointed Permanent Secretary in 2010 following a 30-year career in Hong Kong Government works departments. NEC editor Simon Fullalove spoke to him recently.

You announced last year that NEC3 contracts will be generally used for government construction contracts in Hong Kong in 2015 and 2016. Can you elaborate?

Yes, for all new government works contracts tendered in fiscal years 2015 and 2016 (our fiscal years start in April) I have asked my works departments to use the full suite of NEC3 contracts as far as possible for extending our trial on the use of NEC3 contracts. If a works department has already decided on another form of contract for a particular project before April 2015, I will not insist they change it. So far we have completed three NEC3 pilot projects, have 12 more under construction and a further 17 in various design and planning stages. These range from a HK\$10 million Professional Services Contract (PSC) to a HK\$3 billion Engineering and Construction Contract (ECC), with a total value exceeding HK\$11 billion (see table). Our total works expenditure is currently around HK\$70 billion a year so I expect a significant proportion of this being undertaken by NEC3 contracts by March 2017. We will then carry out a performance review of all NEC3 projects, both completed and under way, before deciding how to proceed. Based on my personal assessment I think we will continue using NEC3 contracts in the future.



Happy Valley underground stormwater storage, using NEC3 ECC Option C

What forms of contract do you normally use and what led you to NEC?

The most commonly used form of contract for public works in Hong Kong is the Hong Kong General Conditions of Contract. It is based on the former ICE Conditions of Contract and has been used for many years, but it tends to create an adversarial relationship between the contracting parties which in turn leads to disputes and

delays. In 2000 the Government appointed a committee chaired by Henry Tang to conduct a review of the Hong Kong construction industry and identify measures to improve performance. The committee observed that the industry lacked a teamwork culture so, as soon as its report was published in January 2001, we started introducing a non-contractual partnering arrangement into the Hong Kong General Conditions of Contract. We also started to shift our focus from dispute resolution towards dispute avoidance and, since 2005, we have been appointing dispute resolution advisers on most of the bigger contracts to help resolve disagreements as soon as they arise. In parallel we reviewed the Hong Kong General Conditions of Contract to see if we could convert the non-contractual partnering arrangement into a contractual partnering obligation. However, this proved too difficult – it basically meant overhauling the entire conditions of contract. So, since the NEC3 suite with its inherent partnering was already available, we decided to try it rather than attempting to produce our own partnering-based contract. That is the journey we have been on.

What do you see as the main benefits of NEC over conventional contracts?

The main benefit of NEC3 contracts over conventional contracts is that they have partnering built in, encouraging the two contracting parties to work together to solve problems. An NEC feature we especially like is the risk-sharing mechanism in some of the options. The pain share / gain share mechanism basically drives the contracting parties to the common goal of completing the works at least cost and in the shortest possible construction period. The NEC early warning system for advance notification and reduction of risk is also very good, encouraging the contracting parties to act together to deal with risk instead of not addressing it and trying to mitigate its effects later on.

'Overall it is NEC's collaborative spirit that helps to improve contract management, increase cost-effectiveness and improve project outcomes.'

How are the NEC3 pilot projects going so far?

For the three NEC3 contracts completed so far the results are very positive. They were all on time, within budget, and one of the contracts finished 6 months earlier than the completion date and the final construction cost was 5% lower than the final target cost. So yes, the initial outcome is very good. Our main concerns relate to the expertise required to get the most from NEC3 contracts. We require sufficiently trained professionals in Hong Kong – especially engineers. We note that some of the contractors misuse some of the features in NEC3 contracts, in particular compensation



Fuk Man Road Nullah, using NEC3 ECC Option C

events. We are thus currently working on how to deliver more training for both government and industry staff to ensure we can make full use of and get full benefit from NEC3 contracts.

And what about the private sector?

Certainly the private sector is also showing considerable interest in NEC3 contracts, with a number of trial projects already underway. Organisations such as MTR and CLP are very likely to follow the Government's lead and both have recently let NEC3 contracts. And while we cannot impose anything upon private developers, they too are expressing serious interest – not least the Hong Kong Academy, which completed a campus last year under an ECC option C. The private sector is represented on the Hong Kong Construction Industry Council, which will be promulgating reference materials on using NEC3 contracts, so we hope all sectors of the construction industry will soon start switching over. In addition, main contractors on NEC projects are also beginning to let NEC3 subcontracts, recognising the benefits collaborative working can bring to their own supply chains.

What are the main challenges to making the switch?

As I have already mentioned, training is probably the biggest challenge to the universal adoption of NEC3 contracts in Hong Kong. The Government has been providing extensive NEC training for our professional engineers and technical staff. A total of around 2000 staff have already received some NEC training, including 70% of our just over 2500 professional engineers, though much of this is just preliminary rather than in-depth training. Some of the courses we organise are open for our contractors as well. In addition, quite a number of our contractors are organising training for their own staff – not least because they will have to employ formally NEC-trained staff in order to win government contracts in 2015 and 2016. We generally source our training from experienced practitioners including those from UK and local training organisations.

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Do you think the new NEC3 ECC Project Manager Accreditation course will help?

Yes, I have personally studied the details of the ECC Project Manager Accreditation course. I think it is a very intensive course – much more so than the other NEC courses we have so far provided for our staff. It looks very useful and I believe it

will help us to build the capacity of our project managers on ECC contracts. I have thus asked our works departments to nominate staff to take part in the course and so far we have around 40 candidates. We will arrange the accreditation courses for these people later this year and will continue to put our engineers through them if they prove worthwhile.

HONG KONG GOVERNMENT NEC3 PILOT PROJECTS AT AUGUST 2014	NEC3 CONTRACT	VALUE: HK\$ MILLION	COMPLETION DATE
Completed projects			
Fuk Man Road Nullah	ECC option C	76	May 2012
Noise barriers on Fanling Highway	ECC option C	207	Dec 2013
Noise barriers on Tai Po Tai Wo Road	ECC option C	82	May 2014
Current projects			
Tin Shui Wai Hospital	ECC option A	2,968	May 2016
Happy Valley underground stormwater storage	ECC option C	678	Dec 2017
Pak Hok Lam trunk sewer and Sha Tau Kok village sewerage	FC + ECC option B	187	Aug 2016
Yuen Long and Kam Tin sewerage, stage 3	ECC option D	145	Sep 2016
Lam Tsuen Valley sewerage	ECC option B	173	May 2016
Improvement to Pok Oi interchange	ECC option C	265	Sep 2015
Improvement of fresh water supply to Cheung Chau	ECC option C	181.8	Nov 2015
Slope maintenance Term Service Contract for New Territories and outlying islands	TSC option A	404	Mar 2016
Building and civil maintenance and minor works to Drainage Services Department plants and facilities	TSC option A	160	Nov 2016
Management and maintenance of high-speed roads in east New Territories and Hong Kong Island	TSC option A	490	Mar 2019
Maintenance contract for seawalls and navigation channels	TSC option A	98	Oct 2016
Maintenance contract for piers	TSC option A	95	Mar 2017
Consultancy contracts awarded			
Drainage improvement works in Happy Valley – investigation, design and construction	PSC option G	9	Q4 2019
Landslip prevention and mitigation programme 2013 – investigation, design and construction	PSC option C	16	Q4 2019
Projects under planning			
Provision of electrical and mechanical facilities for Tin Liu Ha sewage pumping station and Tong Min Tsuen sewage pumping station	ECC option C	18	TBC
Improvement works at Mui Wo, phase 1	ECC option C	163	TBC
Term Service Contract for the maintenance, conservation and restoration of graded historic buildings and declared monuments	TSC option A	595	TBC
Operation of Chai Wan public fill barging point and Mui Wo temporary public fill reception facility	TBC	TBC	TBC
Landslip prevention and mitigation programme 2014, package X	TBC	TBC	TBC
Kai Tak development – stage 5 infrastructure at former north apron area	TBC	1,200	TBC
Drainage maintenance and construction in mainland north districts (2015 – 2019)	TSC option A	284	2019
Tsuen Wan O sewerage for villages and sewerage for Ma Yau Tong village	TBC	230	TBC
Provision of electrical and mechanical facilities for Ma Po Mei village sewerage pumping stations	ECC option C	70	TBC
Rehabilitation of trunk sewers in Kowloon, Shatin and Sai Kung	TBC	559	TBC
Rehabilitation of trunk sewers in Tuen Mun	TBC	811	TBC
Harbour area treatment scheme stage 2A	TBC	20	TBC
Construction of village sewerage at Peng Chau phase 2	TBC	82.8	TBC
Retrofitting of noise barriers on Tuen Mun Road – town centre section	ECC option A	547	TBC
Re-provision of Harcourt Road fresh water pumping station	ECC option B	565	TBC



Tin Shui Wai Hospital, using NEC3 ECC Option A

Can universities help?

I think it is vital that procurement and associated management subjects including NEC are taught on construction and engineering university courses. This will give future graduates a better grounding in these topics and make them more adaptable to working in a collaborative environment. I am currently a member of the advisory committees of the civil engineering departments for both the University of Hong Kong and the Hong Kong Polytechnic University, and I am pleased to note they are both now putting more emphasis on procurement in their curricula.

'My message to fellow engineers in the Asia-Pacific is just one word: 'collaboration''



Noise barriers on Fanling Highway, using NEC3 ECC Option C

What would you say to construction professionals in other parts of the Asia-Pacific region?

Having been in the construction industry in Hong Kong for over 30 years I am determined to change the prevailing adversarial attitude. As the old saying goes, 'divided we fail'. My message to fellow engineers in the Asia-Pacific is just one word: 'collaboration'. I think the construction industry, not only in Hong Kong, but also right across the world needs collaboration among all the parties involved, in particular as projects get more and more complex and increasingly difficult to deal with.

Questions by **Simon Fullalove**, NEC writer and content editor