NEC® Users’ Group Annual Seminar 2014
Dynamic Infrastructure and project delivery

28 APRIL | LONDON
NEC in Hong Kong

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Drainage Services Department
The Government of the Hong Kong Special Administrative Region
28 April 2014
Agenda

- Use of NEC in Hong Kong
- Opportunities and Challenges
- NEC Adaptation in Hong Kong
Background

Procurement of Projects in Hong Kong Government Stores and Procurement Regulations

- Works Contracts
  - Central Tender Board
  - General Conditions of Contract (GCC) (1999)

- Consultancy Agreements
  - Engineering & Associated Consultants Selection Board
  - General Conditions of Employment of Engineering and Associated Consultants (GCE) (1997)
Background

General Conditions of Contract (GCC)
- A family for various types of works contract
- Based on ICE Conditions of Contract

General Conditions of Employment of Engineering and Associated Consultants (GCE)
Background

Works Departments in Hong Kong

- Development Bureau (DEVB)
- Legal Advisory Division (Works) (LAD(W))
- Independent Commission Against Corruption (ICAC)
- Architectural Services Department (ArchSD)
- Civil Engineering and Development Department (CEDD)
- Drainage Services Department (DSD)
- Electrical and Mechanical Services Department (EMSD)
- Water Supplies Department (WSD)
- Highways Department (HyD)
Background

- General Conditions of Contract (GCC)
  - Higher risks allocated to Contractor
  - Higher chance of dispute
  - Adversarial
Background


“Construct for Excellence”

- Partnering
- Integrate partnering to contractual relationship
- Alternative payment methods e.g. target cost, pain-gain share
From 2001

- Non-contractual partnering
- But under adversarial contract form

In 2006, Hong Kong Government Decided to Take One Step Further

- Adopt NEC3 – contractual partnering
- DSD – 1st works department for pilot trial on NEC ECC
Planning of 1st NEC Contract in DSD

Engage NEC Advisor (Oct 2006)

Seek Advice on anti-corruption from ICAC (2007-2009)

Consult Hong Kong Construction Association, Organize NEC Workshops and Dummy Tender Exercise (2009)

Seek Advice on legal and administrative measures (2007-2009)

Work Contract Signing (Aug 2009)

NEC Working Group (2007)

Steering Committee (2007)
1st NEC Contract in DSD and in Hong Kong Government

Planning of 1st NEC Contract in DSD

- Project selected as NEC pilot
- Appointed NEC consultant
- Option evaluation, tender preparation, consultation with Government departments
- Documents Consult HKCA
- Tender briefing and dummy tender exercise

Timeline:
- 2006: 1Q, 2Q, 3Q, 4Q
- 2007: 1Q, 2Q, 3Q, 4Q
- 2008: 1Q, 2Q, 3Q, 4Q
- 2009: 1Q, 2Q, 3Q, 4Q
1st NEC Contract in DSD and in Hong Kong Government

Improvement of Fuk Man Road Nullah in Sai Kung

- Decking 180m long 12m wide open nullah, road and landscaping works

Success in: Early completion by 6 months
Gain share of ~ 5%
Working relationship
Public Image
Feedback from Public

“DSD, Contractor and Consultant have put great effort in enhancing communication with local stakeholders and presenting progress of works to District Council members. ‘More communication, fewer problems’ - I do appreciate this new thinking approach”

Ng Sze-fuk, SBS, JP
Chairman
Sai Kung District Council
### NEC Contracts in Hong Kong

#### DSD’s current NEC Contracts

<table>
<thead>
<tr>
<th>Contract / Agreement No.</th>
<th>Contract / Agreement Title</th>
<th>Contract Sum</th>
<th>Nature</th>
<th>Start / Completion</th>
<th>NEC Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC/2008/02 Consultant</td>
<td>Improvement of Fuk Man Road Nullah in Sai Kung</td>
<td>$76M</td>
<td>Nullah Decking</td>
<td>Aug 2009 / May 2012 (C)</td>
<td>ECC Option C</td>
</tr>
<tr>
<td>DC/2012/09 Consultant</td>
<td>Pak Hok Lam trunk sewer and Sha Tau Kok village sewerage</td>
<td>$203M</td>
<td>Village sewerage</td>
<td>June 2012 / Aug 2016</td>
<td>Framework + ECC Option B</td>
</tr>
<tr>
<td>DC/2012/03 In-house</td>
<td>Happy Valley underground stormwater storage scheme</td>
<td>$678M</td>
<td>Flood prevention</td>
<td>Sept 2012 / Apr 2018</td>
<td>ECC Option C</td>
</tr>
<tr>
<td>DC/2012/05 Consultant</td>
<td>Yuen Long and Kam Tin Sewerage</td>
<td>$160M</td>
<td>Village sewerage</td>
<td>Sept 2012 / Sept 2016</td>
<td>ECC Option D</td>
</tr>
<tr>
<td>DC/2012/07 Consultant</td>
<td>Lam Tsuen village sewerage</td>
<td>$173M</td>
<td>Village sewerage</td>
<td>Oct 2012 / Jan 2016</td>
<td>ECC Option B</td>
</tr>
<tr>
<td>DC/2012/01 In-house</td>
<td>Building and Civil Maintenance to DSD plant and facilities</td>
<td>$160M</td>
<td>Maintenance</td>
<td>Dec 2012 / Nov 2016</td>
<td>TSC Option A</td>
</tr>
<tr>
<td>DE/2013/05 In-house</td>
<td>E&amp;M Facilities for Sewage Pumping Stations</td>
<td>$18.5M</td>
<td>E&amp;M</td>
<td>Mar 2014 / Sep 2015</td>
<td>ECC Option C</td>
</tr>
<tr>
<td>CE 63/2013 Consultant</td>
<td>Drainage Improvement Works in Happy Valley</td>
<td>$8.9M</td>
<td>IDC Consultancy</td>
<td>Apr 2014 / mid 2019</td>
<td>PSC Option G</td>
</tr>
</tbody>
</table>
DSD R&D Forum 2013 – NEC
(28-11-2013)
NEC Contracts in Hong Kong

**Overall**

- 17 ECC contracts by end 2013
- DEVB’s policy:
  - Extend pilot on NEC form in 2015 and 2016

**In the Pipeline**

<table>
<thead>
<tr>
<th></th>
<th>ECC – Construction Contracts</th>
<th>PSC - Consultancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSD</td>
<td>7</td>
<td>27</td>
</tr>
<tr>
<td>All works departments in Hong Kong</td>
<td>13</td>
<td>48</td>
</tr>
</tbody>
</table>
Opportunities

Risk Management

- Risk register
- Early warning notice
- Risk reduction meetings

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Risk Management by Contractual Partnering: NEC

30. For better risk management, Government has been using the New Engineering Contract (NEC) form, which emphasizes mutual trust and co-operation between the contracting parties, in some pilot public works contracts. The NEC form allocates contractual risk to the party best able to manage it. Moreover, it provides a collaborative risk management mechanism to reduce the chance of risk occurrence as well as mitigating the consequence when the risk is materialized. The sharing and management of risk in the NEC form could help reduce the cost to the project due to materialization of the risks.
Opportunities

Early Risk Identification & Timely Joint Problem Solving

Risk
- Conflict with HEC cables
- Progress hampered
- Impact on horse racing

Joint Problem Solving
- Joint advance planning
- Secured HKJC’s agreement on TTA
- DSD’s/HKJC’s/HEC’s contractors collaborated in cable diversion

Diversion of HEC’s Cable by Joint Efforts
Opportunities

### Early Warnings and Risk Reduction

<table>
<thead>
<tr>
<th>Contract No.</th>
<th>No of Early Warning Notice Issued</th>
<th>No of Risk Reduction Meeting Held</th>
<th>No of Early Warning Notice Resolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC/2012/09</td>
<td>23</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>DC/2012/03</td>
<td>28</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>DC/2012/05</td>
<td>41</td>
<td>49</td>
<td>36</td>
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<tr>
<td>DC/2012/07</td>
<td>15</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>DC/2012/01</td>
<td>10</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>
Opportunities

*Cost Control*

- Prospective compensation events
- Less dispute
- Early finalisation

<table>
<thead>
<tr>
<th>Contract No.</th>
<th>No of CE notified</th>
<th>No of CE agreed</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC/2012/09</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>DC/2012/03</td>
<td>78</td>
<td>33</td>
</tr>
<tr>
<td>DC/2012/05</td>
<td>31</td>
<td>28</td>
</tr>
<tr>
<td>DC/2012/07</td>
<td>30</td>
<td>29</td>
</tr>
<tr>
<td>DC/2012/01</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
Opportunities

Cost Saving Design

Early Approval
- Approval-in-principle: 2 months
- Final approval: 7 months
- Potential time saving: 5 months
- Potential cost saving: $70M

Gain/pain share:
- Incentive to jointly drive final cost down
Opportunities

- **Staff Morale**
  - Team spirit / harmony
  - Stakeholders’ satisfaction
  - Achievement

**Mobile Messenger Device**

**Joint Organization Chart**

**DSD / Contractor**
Site Housekeeping Award 2013

**Stakeholders Workshop:**
District Council members, HKJC, LCSD, Contractor, Subcontractors
Opportunities

Partnering Scores

Down Trend (due to increased difficulties on site)

Up Trend (after some success cases)

Champion Group
Challenges

- Lack of Knowledge / Experience
  - Form of contract
  - Contractual terms
  - Administrative procedure
  - Programming
  - Cost accounting
Challenges

- **Resource Demanding**
  - NEC advisory and project management
  - Programming and costing
  - Early intensive resources
Challenges

- Inherent Culture in All Levels
  - Status quo
  - Risk averse
  - Personal conviction/belief
  - Greed
  - Bureaucracy

Follow the rules

Conviction
Commitment
Perspective
Trust
Perseverance
Challenges

- **Trade Practices**
  - Preferred subcontractors
  - Pre-bidding
  - Open book accounting
  - Tactical pricing
  - Windfall profit
Challenges

- Scepticism
  - Purpose
  - Accountability
  - Liability
  - Integrity
  - Sustained effort
NEC Adaptation in Hong Kong

Promote Partnering

Birthday Party

Joint Site Office

Dragon Boat Racing Team
NEC Adaptation in Hong Kong

- **Inclement Weather**
  - Replace ECC Core Clause 60.1(13) by
    1. inclement weather and/or its consequences adversely affecting the progress of the works, or
    2. the hoisting of tropical cyclone warning signal No. 8 or above, or
    3. a Black Rainstorm Warning.
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**Hierarchy Clauses**

- For any ambiguity or inconsistency between any provision or document
- Adopted in PSC contracts
- Consider to be adopted in future ECC contracts
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- **Independent Administration and Cost Audit**
  - Audit NEC practices
  - Cost audit

- **Financial Control and Auditing**
  - Two-tier Payment Auditing Mechanism
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**Dispute Resolution**

- NEC standard Dispute Resolution Options W1 and W2 not adopted in Hong Kong

- Hong Kong government’s dispute resolution provisions added as Z-clauses
  - Mediation
  - Adjudication
  - Arbitration
**NEC Adaptation in Hong Kong**

- **Pain-gain Share Mechanism**
  - Pain – cap at 110% for Employer
  - Gain – no cap
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- **Cash Positive to Cash Negative**
  - ECC Core Clause 11.2 (29)

  “The Price for Work Done to Date is the total Defined Cost which the Project Manager forecasts will have been paid by the Contractor before the next assessment date plus the Fee.”

- Pay when paid
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*Subcontracting*

- ACC Cl. C10 - Tender requirements for subcontracting
  - Different levels of procurement authority
  - More Project Manager’s involvement
  - List of approved contractors / suppliers for sub-contracts
    > HK$4.0M
NEC Adaptation in Hong Kong

- **Further Pursuit for Full Benefit**
  - Options E & F
  - Incentive
  - Cash positive payment
  - Pain/gain share methodology
  - Sub-contracting
Thank You