Session: Public Participation in IA Follow-up

EIA Implementation during the Construction of Central-Wan Chai Bypass

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IAIA13 Impact Assessment

The Next Generation

EIA Implementation during the Construction of Central-Wan Chai Bypass

Purpose

- strategic road along the north shore of Hong Kong Island
- relief traffic congestion

Proponent

- Highways Department (HyD) of HKSAR Government

EIA Implementation during the Construction of Central-Wan Chai Bypass

Environmental Impact Assessment (EIA) Background

- Designated Project under EIAO
- Requires an EP to construct and operate
- EIA during 2001 to 2009
- Latest EIA Report approved in 2009
- EP imposing conditions to govern the construction and operation of CWB issued to HyD in 2009

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Environmental Control Measures in EIA

- Construction works in close proximity with the local community and residences in the busiest districts
- Involves dredging, reclamation and extensive excavation and foundation works for trunk road construction
- Major environmental impacts:
  - Air quality
  - Noise
  - Water quality

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Environmental Control Measures in EIA – Air Quality

- Dust control measures
- Odor control measures

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Environmental Control Measures in EIA – Air Quality

- Dust control measures:
  - strict speed limit on construction site vehicles (10km/hr)
  - frequent water spraying on site haul road
  - Water spray during excavation and material handling
  - vehicle wheel and body washing facilities
  - covering of all dusty loads

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Environmental Control Measures in EIA – Air Quality

- Odor control measures:
  - restriction of dredging operation to only one small closed grab dredger
  - double silt curtains - fully enclose the dredger
  - impermeable barrier system to isolate the odorous sediment removal works area
  - restrict dredging rate and dredging period to non-popular hours during weekdays

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Environmental Control Measures in EIA – Noise

- Construction noise control measures
- Operational noise control measures

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Environmental Control Measures in EIA – Noise

- Construction noise control measures:
  - temp. noise barriers w cantilever & int. sound absorptive lining
  - restrict demolition works using pneumatic breakers
  - use movable/temp. noise barriers
  - quiet powered mechanical equipment
  - adopt multiple-phase construction schedules & grouping of PME

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Environmental Control Measures in EIA – Noise

- Operational noise control measures:
  - permanent vertical / cantilevered noise barriers and semi-enclosure
  - paving of low noise road surfacing with speed limit of 70 km/hour
  - installation of silencers to all ventilation fans installed in all ventilation buildings

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Environmental Control Measures in EIA – Water

- 3-step approach in EIA for reclamation
  1. confirm the overriding and present need for the Project
  2. identify any "no-reclamation options"
  3. ensure the reclamation was restricted to only the minimum extent for the overriding public need

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Environmental Control Measures in EIA – Water

- Water quality control measures
  - restrict reclaim sequences of diff. work zones
  - restrict dredging rates, no. of closed grab dredger at each works zone
  - deploy silt curtain - dredging / filling works
  - restrict filling works behind seawall above high water mark
  - deploy silt screens at cooling water intakes

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Environmental Monitoring in EIA

- Construction dust monitoring
  - 1-hr TSP: 3 times every 6 days; 24-hr TSP: once every 6 days
- Odour monitoring-biweekly in July to Sept
- Construction noise monitoring
  - Leq(30-min): once every week; Real-time noise monitoring
- Water quality monitoring-3 times every week, during both mid-ebb and mid-flood

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Actual Implementation – Air quality

- Site planning and general requirements
- Material handling
- Excavation / Drilling / Demolition

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Actual Implementation – Air quality

- Site planning and general requirements
  - Before commencement- locate/evaluate dust control facilities, open areas, haul roads, site entrances / exits for vehicle washing facilities & propose measures
  - Open burning on the site prohibited
  - Vehicle speed of haulage trucks at 10km/hr.
  - Regular water spray to site road / areas with active operation

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Actual Implementation – Air quality

- Site planning and general requirements
  - Areas with regular traffic-paved w concrete / hardcore
  - Unpaved roads regularly compacted to avoid any loose material
  - Tarpaulin cover to vehicles transporting dusty material within the site
  - ULSD used on all const. plants with the delivery and consumption recorded mthly

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Actual Implementation – Air quality

- Material handling
  - Stockpiles of sand/soil covered or sprayed with water
  - Handling or storage of cement carried out in an area sheltered on the top and with three sides
  - Water Sprinklers provided inside enclosure of the loading jetty and along haul road

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Actual Implementation – Air quality

- Excavation / Drilling / Demolition
  - Dust generation is minimized by the use of water sprays and temporary fabric cover.
  - Water sprays was used during concrete/stone breaking works.
  - Final surfaces after excavation was well compacted to prevent erosion

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Actual Implementation – Noise

- General measures
- Diaphragm Walls and Bridge Structures
- Noise Control Management System (NCMS)
- Liaison with Noise Sensitive Receivers

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Actual Implementation – Noise

- General measures
  - CNP for works after 7:00pm
  - QPME used
  - Generators, cranes orientated to direct noise away from the closest NSRs.
  - Noisy activities such as rock breaking/grouting works for marine works were avoided during exam periods.
  - Silencers / mufflers used during construction
  - A NMP prepared to ensure mitigations are implemented

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Actual Implementation – Noise

- Diaphragm Walls and Bridge Structures
  - For the construction of diaphragm walls and bridge structures within Portions I, II, III, IV, V, VI, VII, VIII, IX, and X, temporary noise barriers (5m in height) with cantilevered upper portion (3.5m in length) consisted of material with a surface mass of not less than 14 kg/m^2 with 25mm thick internal sound absorptive lining were used.

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Actual Implementation – Noise

- Noise Control Management System (NCMS)
  - a night work permit requiring approval from mgt prior to night work
- Liaison with Noise Sensitive Receivers
  - HK Baptist Church Henriette Sec. School and PLK Yu Lee Mo Fan Memorial School - check exam periods
  - Harbour Grand HK, City Garden, Provident Centre

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Actual Implementation – Water

- General measures
  - Review all sources of construction wastewater in order to minimize and treat to meet the license requirements
- Construction runoff
  - Perimeter channels at site boundaries to divert, treat wastewater, surface runoff & reuse
  - discharged into storm drains via treatment facility which includes a sedimentation tank for coagulation and flocculation

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Actual Implementation – Water

- General construction activities
  - Min. surface excavation during wet seasons
  - Groundwater discharged into storm drains via silt removal facilities.
  - Spent bentonite collected for cleaning and reuse / disposal to landfill
- Silt curtain- installed to suit const. prog.
- Floating refuse- collected and removed daily

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Actual Implementation – Waste

- Open a billing a/c under 'construction waste charging scheme' for disposal of C&D waste
- DASO permit for marine sediment disposal
- Chemical waste disposal license
- Good Site Practice
  - Construction materials stocked carefully to prevent damage or contamination.
  - Amount of waste reused, recycled, disposed of is recorded (Waste Flow Table)

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Actual Implementation – Waste

- C&D Material
- General refuse
- Chemical waste
- Timber waste
- Trip ticket system

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Actual Implementation – Waste

- C&D Material
  - Reuse for backfilling, transport to other projects & surplus disposed of to TM38
  - Demolition materials from the existing IEC to broken down to 250mm size and steel reinforcement removed prior to reuse / recycle / disposal
  - Bentonite slurries used in diaphragm wall and bore-pile construction was reconditioned and reused.

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Actual Implementation – Waste

- General refuse
  - General refuse stored in enclosed bins separated from construction and chemical wastes for removal.
  - Separate, labeled bins were provided for the collection of recyclable materials including paper, plastic bottles and aluminium cans, etc.

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Actual Implementation – Waste

- Chemical waste
  - Handled in accordance with Chemical Waste Regulations and the Code of Practice on the Packaging, Labeling and Storage of Chemical Waste.
  - Disposed of to the Chemical Waste Treatment Facility.
  - Summary Record of chemical waste disposal

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Actual Implementation – Waste

- Timber waste
  - Minimize use of timber in temp. works
  - Timber waste sorted & collected for reuse or collected by recycle contractors
  - Summary table presents a description, justification for the use of timber for temp. works construction. This summary table is updated monthly for the purpose of on-going monitoring and review

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Actual Implementation – Waste

- Trip ticket system
  - Implement a monthly programme for disposal of C&D material/waste off site by marine transportation and corresponding disposal grounds for subsequent monitoring
  - Summary Record of Trip Ticket System

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Actual Implementation – Waste

- Real time tracking & monitoring of vessel sys.
  - Front End Mobile Unit (FEMU) installed on all marine dumping vessels to record both the barge's position and the draught
  - monitor location and loading/dumping operations
  - EPD can monitor barges from their office
  - ensure contaminated sediments are disposed of at the designated outlet in the sea

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Actual Implementation – Treating Contaminated Sediment

- SSTP - in compliance with ETWB TC (W) No. 34/2002 for the classification of contaminated sediment type(s), volume for disposal at relevant disposal outlets and for the application of sediment disposal space.
- SQR - after the approval of the SSTP to support the dumping permit application under the DASO, Cap. 466 for the proposed drilling works.

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Actual Implementation – Treating Contaminated Sediment

- Handling, storage and disposal
  - Type 1/2 marine sediment was excavated from inside permanent pile casings using a tight-seal hammer grab
  - transferred to sealed and marked containers on the working platform
  - Vol. recorded, containers locked & covered at the end of the day to ensure excavated sediment are properly stored

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Actual Implementation – Treating Contaminated Sediment

- Handling, storage and disposal
  - marine sediment off-loaded into the hopper barge and towed to the designated dumping area
  - bottom opening of barges fitted with tight fitting seals to prevent leakage of material
  - decks and exposed fittings of barges and hopper cleaned before the vessel is removed