

An aerial photograph of Hong Kong, showing a dense urban landscape with numerous skyscrapers and buildings. The Victoria Harbour is visible in the center, with several boats and ships. The sky is blue with some light clouds. The text is overlaid on the top half of the image.

Developing and Implementing Contractors Safety Management Programme for Clients and Inspecting Engineers

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Introduction

- ◆ **Hong Kong is famous for infrastructures and construction projects e.g. new airport project**
- ◆ **Poor safety records due to:-**
 - **Tight schedule of projects**
 - **Multi-level subcontracting system**
 - **Limited budget on safety investment**
 - **Inability of safety officers to enforce safety regulations, etc.**

Development and Implementation Strategy

- ◆ **Social Accountability - safety and health**
- ◆ **A railway transport operator (Client) was entrusted by the Government to construct a new airport railway**
- ◆ **A Project Management Team was employed by the Client to supervise Contractors – Inspecting Engineer**

Development and Implementation Strategy

Contractors Safety Management Programme:-

- ◆ Initial Status Review
- ◆ Safety Policy
- ◆ Safety Organizing
- ◆ Planning and Implementing
- ◆ Measuring Performance
- ◆ Management Review

Initial Status Review

- ◆ **Identification of Safety and Health Needs**
 - **General Specification - general safety and health requirements e.g. submission of safety plan & implementation of safety audits**
 - **Particular Specification - specific safety requirements for individual contracts e.g. working on landfill site**
 - **Review by Tender Package Preparation Team**
 - **Enable tenderers for allowing safety budgets**

Initial Status Review

- ◆ **Pre-qualification and Tender Assessment**
 - **Pre-qualification assessment**
 - **Tender Assessment**
 - **Tender Interview**
 - **Final Tender Assessment Report**

Initial Status Review

Before the commencement of the Contract, Contractors are required to attend:-

- ◆ **Inaugural Meeting**

- Introduction of Client's safety policy and general safety requirements

- ◆ **Initial Works Meeting**

- Submission of Safety Plan
- Appointment of safety manager and/or safety officers

Development and Implementation Strategy

Contractors Safety Management Programme:-

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- ◆ **Safety Policy**
- ◆ Safety Organizing
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- ◆ Measuring Performance
- ◆ Management Review

Safety Policy

◆ Client's Project Health and Safety Manual

- For Inspecting Engineer and Contractors
- Safety is the responsibility of everybody
- To take immediate actions for any unsafe practices and conditions whenever identified on sites

◆ Contractor's Safety Policy

- Safety policy statement
- To be reviewed at every 2 years

Development and Implementation Strategy

Contractors Safety Management Programme:-

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- ◆ **Safety Organizing**
- ◆ Planning and Implementing
- ◆ Measuring Performance
- ◆ Management Review

Safety Organizing

◆ Safety Organization

- Safety organization chart and safety responsibilities
- Responsibilities of Inspecting Engineer and site staff were also stated in Project Safety and Health Manual

◆ Safety Committees

- Construction Safety Management Committee
- Site Safety Management Committee
- Contractor's Site Safety Committee
- Safety Advisors Monthly Meetings

Safety Training

Contractors

- ◆ Safety induction training courses for new workers and at every 6 months
- ◆ Regular tool box training courses
- ◆ Specific safety training courses for special activities

Inspecting Engineer

- ◆ Internal safety training courses for Inspecting Engineer and site staff

Safety and Health Promotion

- ◆ **Safety Awards for Contractors at every 3 months**
- ◆ **Safety newsletters, booklets, posters etc.**
- ◆ **Safety bulletin boards**

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In-house Safety Rules

- ◆ **Contractors were required to prepare all relevant safety rules and procedures including “Permit to Work” system for high risk activities**
- ◆ **Contractors were also required to comply with the Client’s in-house safety procedures when working at or near the existing operating railway**

Job Hazard Analysis

- ◆ **Detailed risk assessment report with method statement**
- ◆ **Approval is required from the Inspecting Engineer before commencing the site activity**

Personal Protective Programme

- ◆ **Development of personal protective programme is required**
- ◆ **Monitoring through various safety committees and regular safety inspections**

Emergency Preparedness

- ◆ **Emergency procedures for various situations:-**
 - Typhoon
 - Fire
 - Serious accident
 - flooding
 - Adverse weather, etc.
- ◆ **Emergency drills required**

Health Assurance Programme

- ◆ **Health assurance programme required for dealing with:-**
 - **Ventilation**
 - **Lighting**
 - **Noise**
 - **Use of chemicals**
 - **Exposure to radiation, etc.**
- ◆ **Health risk assessment reports**
- ◆ **Effectiveness of control measures**

Evaluation, Selection and Control of Sub-contractors

- ◆ **Detailed arrangements required:-**
 - **Provision of Contractor's Safety Plan**
 - **Pre-work meeting**
 - **Attending Contractor's Site Safety Committee Meetings**
 - **Participation in regular safety inspections**
 - **Safety performance assessment, etc.**

Process Control Programme

- ◆ Risk assessment and method statement required for major construction activities
- ◆ Development of safe working procedures
- ◆ On site supervision by Inspecting Engineer and his site staff. Immediate actions required if unsafe practices and hazardous conditions are noted.
- ◆ Specific accident control programme required for particular site activities, e.g. Fire Safety Plan, Bored Tunnel Safety Plan, etc.

Development and Implementation Strategy

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- ◆ **Measuring Performance**
- ◆ Management Review

Safety Inspection Programme

- ◆ **Formal safety inspection between senior staff of Contractors and Inspecting Engineer / safety advisors conducted on weekly basis**
- ◆ **Joint daily safety inspection (site staff of Contractors & Inspecting Engineer) conducted on high risk activities**
- ◆ **All items identified during the inspection are required to be rectified within the agreed due date**
- ◆ **Follow-up inspections required.**

Accident / Incident Investigation

Serious incident / accident or fatal accident

- ◆ Immediate verbal reporting
- ◆ Written preliminary report within 24 hrs
- ◆ Full investigation report within 5 days
- ◆ Follow-up actions were reviewed during the various safety committee meetings.

Implementing Improvements

- ◆ **Safety performance measurement audit conducted by the Inspecting Engineer (Safety Advisors)**
- ◆ **At every 3 months and/or according to schedules of milestones**
- ◆ **Corrective action plan required after the audit**
- ◆ **Followed by verification audit**
- ◆ **Suspension of milestone payment**
- ◆ **Contractors internal safety audits**

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Management Review

- ◆ **Safety management committee**
- ◆ **Site safety management committee**
- ◆ **Safety advisors monthly meetings**
- ◆ **Safety performance measurement audits**
- ◆ **Closure report for individual contract**

Discussion & Conclusions

- ◆ Provides Contractors to consider safety costs
- ◆ Facilitates the Inspecting Engineer and safety advisors to supervise and monitor Contractors safety performance through regular safety inspections, attending various safety committee meetings, control of method statements and risk assessments, conducting safety promotional activities and milestones safety audits, etc.

Discussion & Conclusions

Problem Areas

- ◆ Communication of contractual safety requirements from Contractors to Sub-contractors and down to workers

Solutions

- ◆ By conducting pre-work safety meeting, induction safety training, regular tool-box safety talks, safety committee meetings, safety promotional activities, etc.

Discussion & Conclusions

Problem Areas

- ◆ Safety co-ordination amongst Contractors (Civil and E&M Contractors) as they were working at same construction site

Solutions

- ◆ By holding Safety Co-ordination Meeting on monthly basis to solve interface issues and utilize common safety resources such as working inside confined spaces and use of working platforms on site

Discussion & Conclusions

- ◆ Overall safety performance was satisfactory
- ◆ About 30 accidents per 1,000 workers per year
- ◆ Enhancing safety performance and safety culture of other Contractors working for private sector clients
- ◆ Improving site safety through partnering and sociological approach

Thank You Very Much

