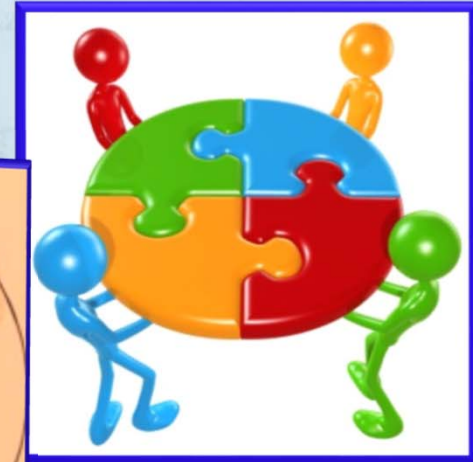
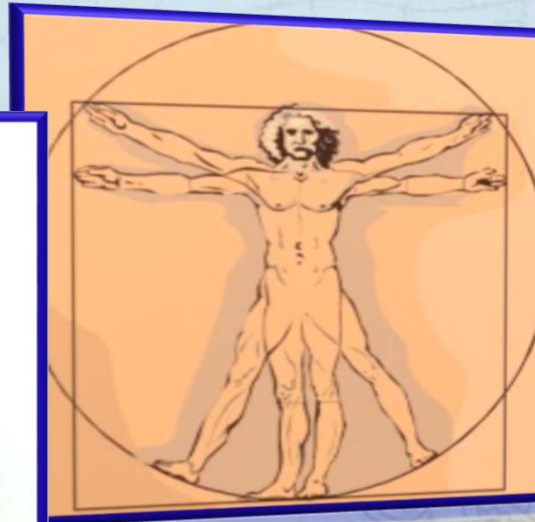




Civil Engineering and Development Department

The Government of the Hong Kong Special Administrative Region

Behaviour Advancement Programme under Public Works Projects – CEDD Experience



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Safety and Environmental Advisory Unit, CEDD

Workers Behaviours



Hong Kong Construction Workers' Image

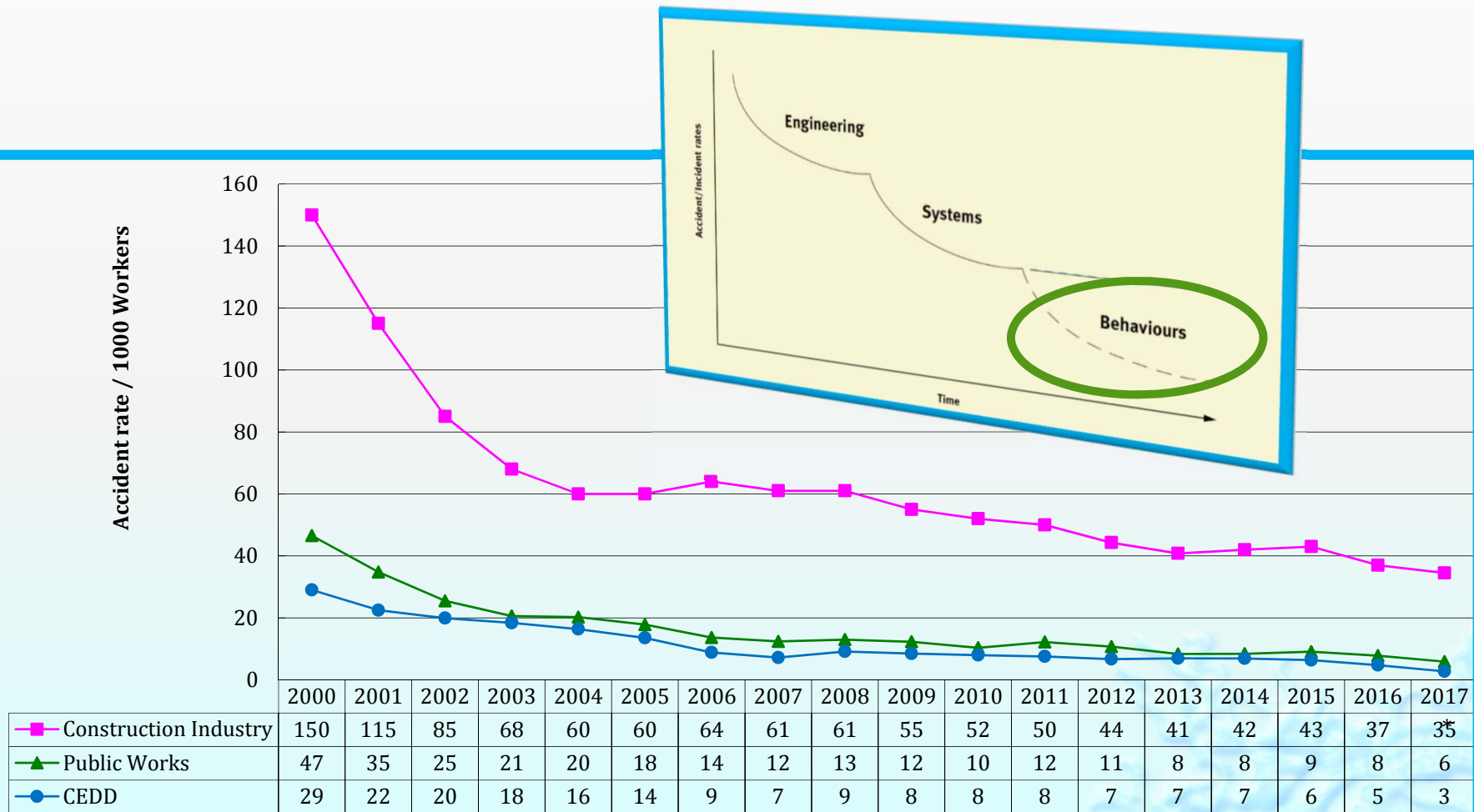


Road works in the US



Hong Kong Construction Sites

What Next after Safety Systems (HSE)



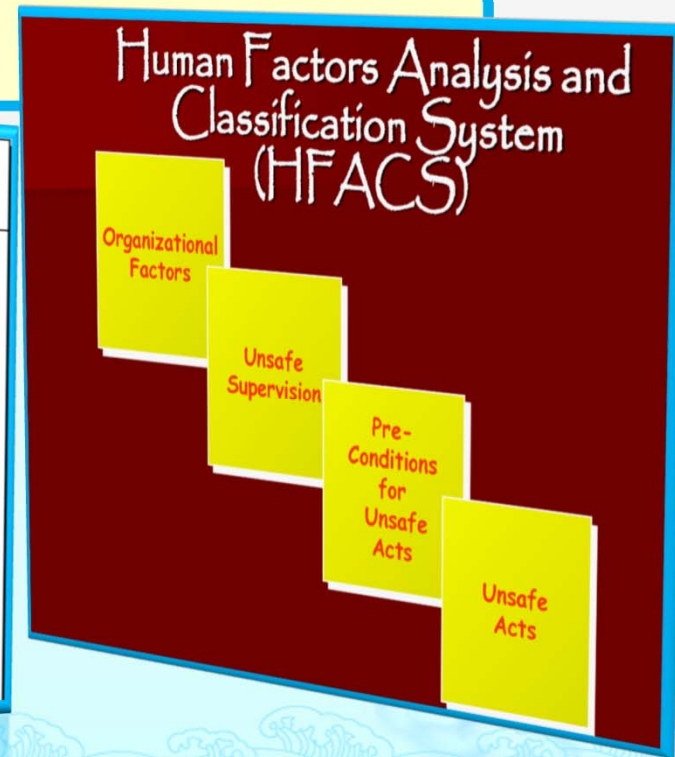
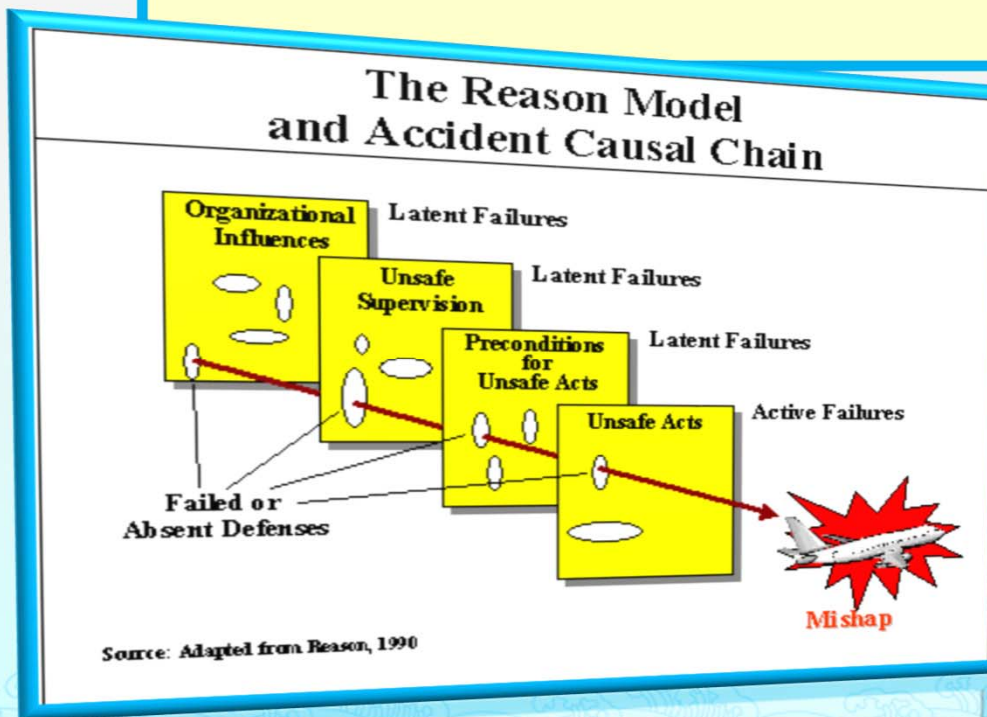
From HSE Experience

- Incorporating human factors into risk assessments;
- Incorporating human factors into analyzing incidents, accidents and near misses;
- *Incorporating human factors into design and management; and*
- *Incorporating human factors into certain other aspects of safety management.*

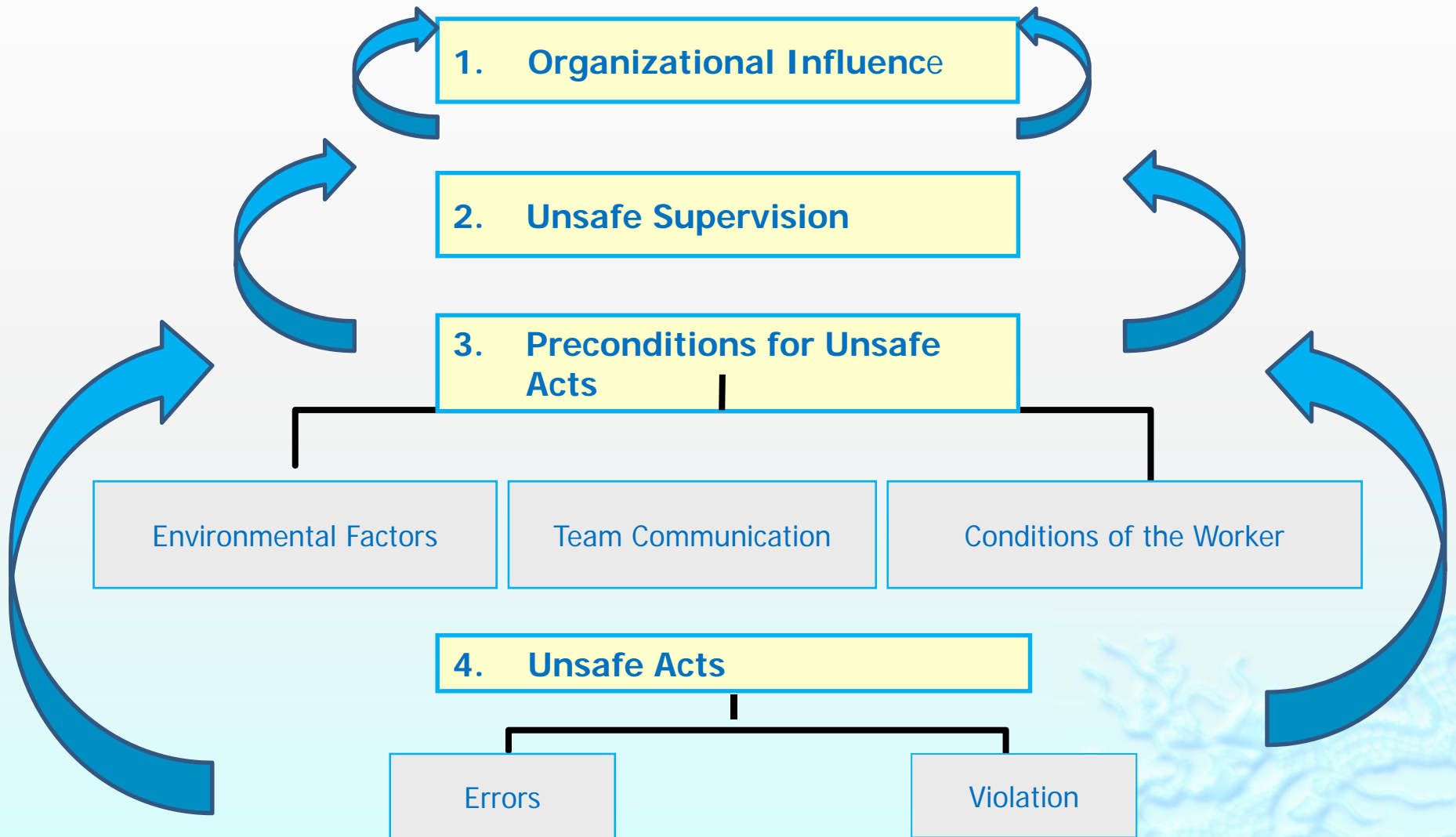
LEARN FROM ACCIDENTES

Human Factor Analysis and Classification System

- DEVB Survey conducted over 350 accidents in public works contracts between 2013 and 2014.



Four Levels of Survey



Key findings / observations

Violations by the workers (not error), contributed to more than half of the accidents

- Take shortcut as a habit to save time; and for convenience.
- Continue to operate in adverse working conditions.
- Instruction not followed due to various reason such as time limitation.

Key findings / observations

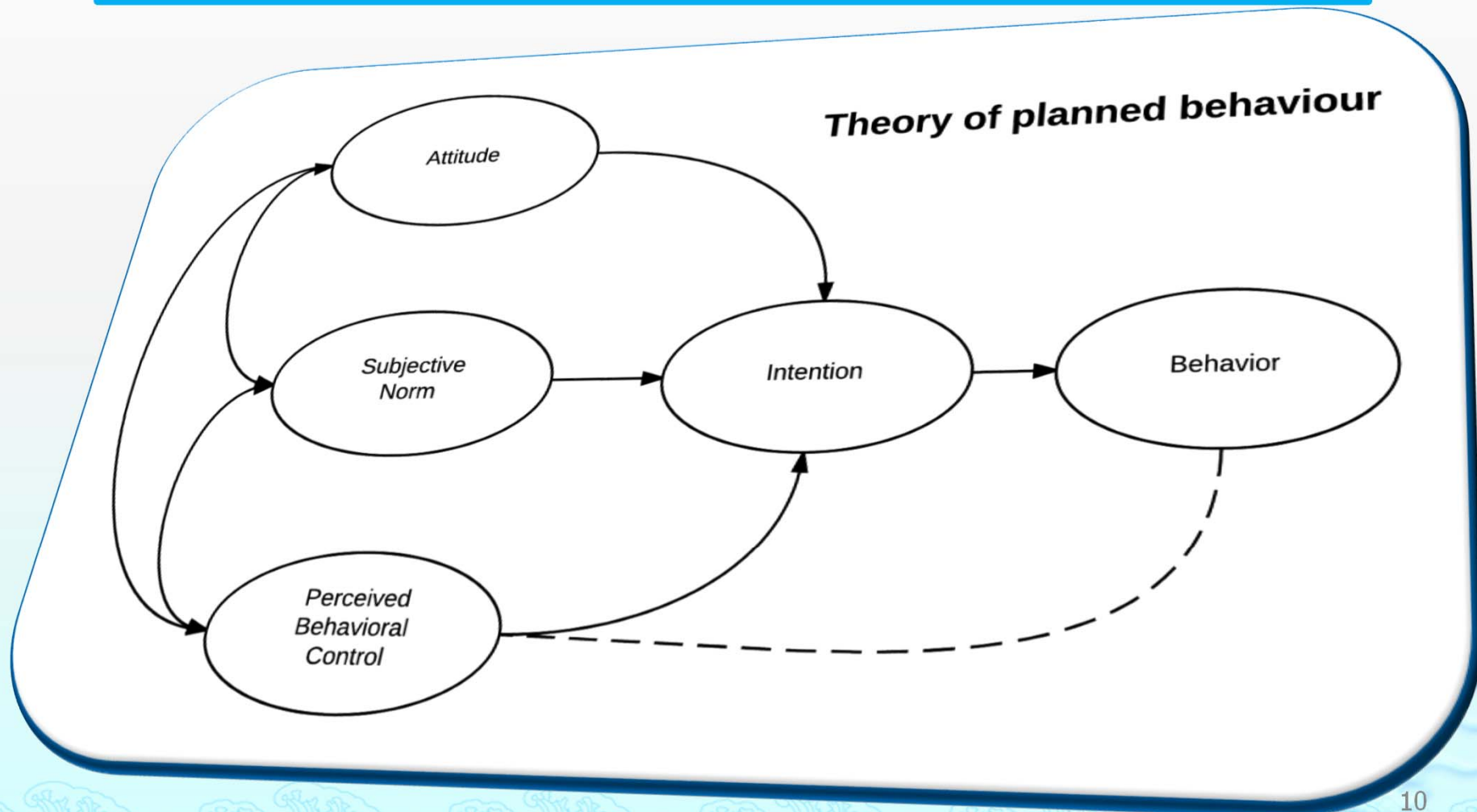
- Organizational Influence – unclear assignment of authority and duties; no accountability of safety; inadequate staffing and manning procedures; perception of risk.
- Unsafe Supervision – Inadequate safety consideration at work planning stage; job beyond capacity of employees; supervisors tolerate unnecessary hazard.
- Preconditions for Unsafe Acts – Poor working environment; working in awkward position; over-confidence; inadequate communication between team members.

Further Human Factor Study

- Review of fatal incidents in the Public Works Contracts in between 2005 to 2014 - It found that human error is a key contribution factor (over 75%) to these fatal accidents.
- 80% of accidents are said to be caused by unsafe human behaviour (HSE, 2002)

Theory of Planned Behaviour

Professor Icek Ajzen (1985)



Behaviour Advancement Programme

A pilot scheme of Behaviour Advancement Programme (BAP) has been developed and incorporated into two contracts:

Contract 1 - Tseung Kwan O - Lam Tin Tunnel, Main Tunnel and
Associated Works

Contract 2 - Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated
Works

Behaviour Advancement Programme

Proposed BAP Pilot Scheme

- Observation of the workers behaviour for one of the following critical activity;
 - working at height,
 - site vehicles and mobile plants,
 - mechanical lifting
 - and confined spaces.
- provisions of improvement measures during the course of observation period;
- reporting, concluding performance results and drawing recommendations.

Behaviour Advancement Programme

- Ownership (Leadership) – Lead by a senior management of the Contractor with training on BAP.
- Assign competent observers to carry out observations on one of the one out of four kinds of workers' behaviour for a period of six months.

General Procedure of BAP

- The competent observers to observe at each selected locations for at least 15 minutes.
- Monthly analysis of data to be present at the SSEMC
- Monthly report to be submitted to the Engineer with details on the performance and recommendations.

Feedback to the Workers

- All workers involved to attend a training with focused on safe behaviour within the first month of the observation.
- The training to be in form of toolbox talks with not less than 15 minutes.
- In the second month, all workers to attend a reinforcement session with feedback charts and the reasons for the unsafe behaviours.
- The Contractor to propose and implement intervention measure aiming to enhance the safe behaviour, which may include revision of method of construction and safe working procedures.

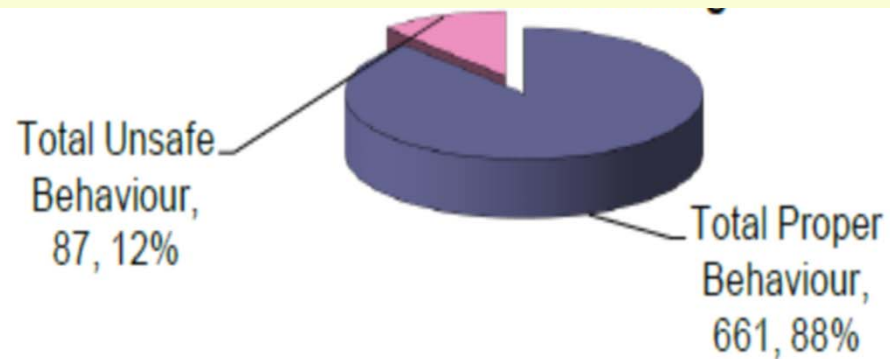
Implementation of BAP

- Three NOs Policy – “No naming, No recording, No reprimanding”
- Reinforcement training session has been conducted on a regular basis
- Discussion with workers on the cause of unsafe acts observed during the tool box sessions.
- Workers’ suggestions on mean to eliminate the unsafe acts are very useful
- Peer and group pressure is an effective way to eliminate unsafe acts

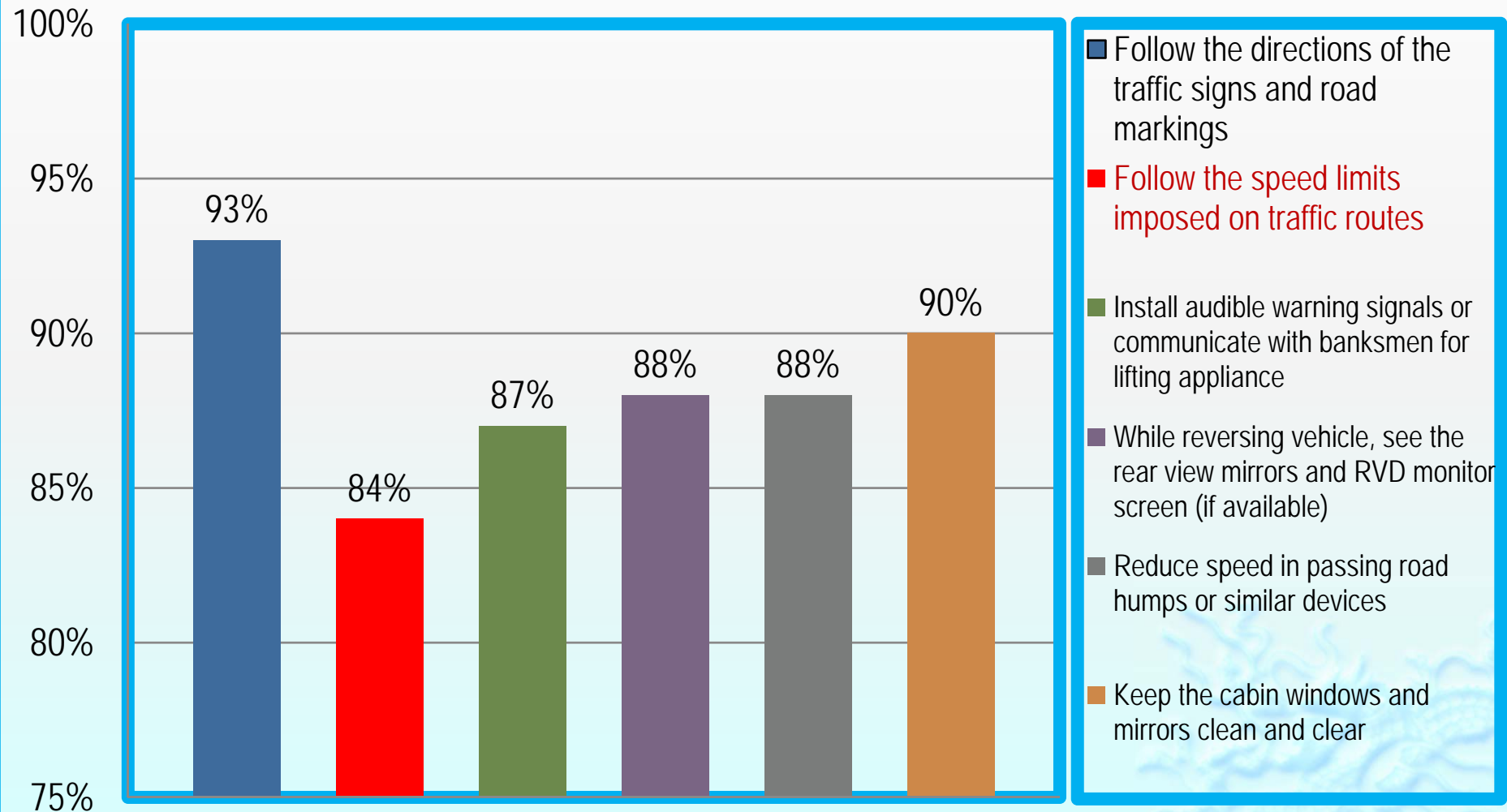
Contract 1

- Critical activity selected - site vehicle and mobile plant
- The baseline was found to be 70%.
- After implementation of BAP for a six months, the rate of compliance has increased to 88%.

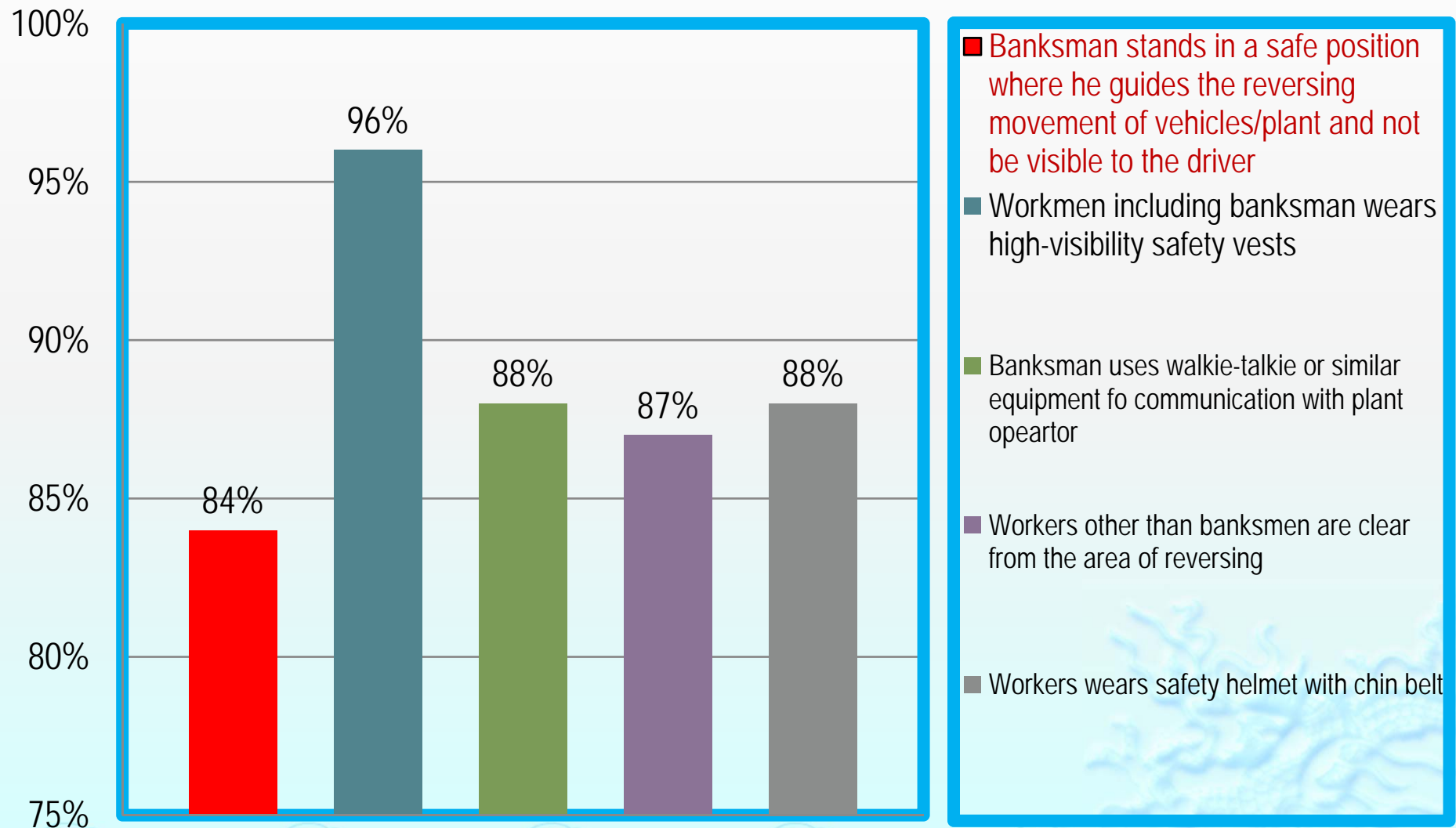
Safe Behaviour for Site Vehicle and Mobile Plant Movement



Contract 1 – Section A - drivers

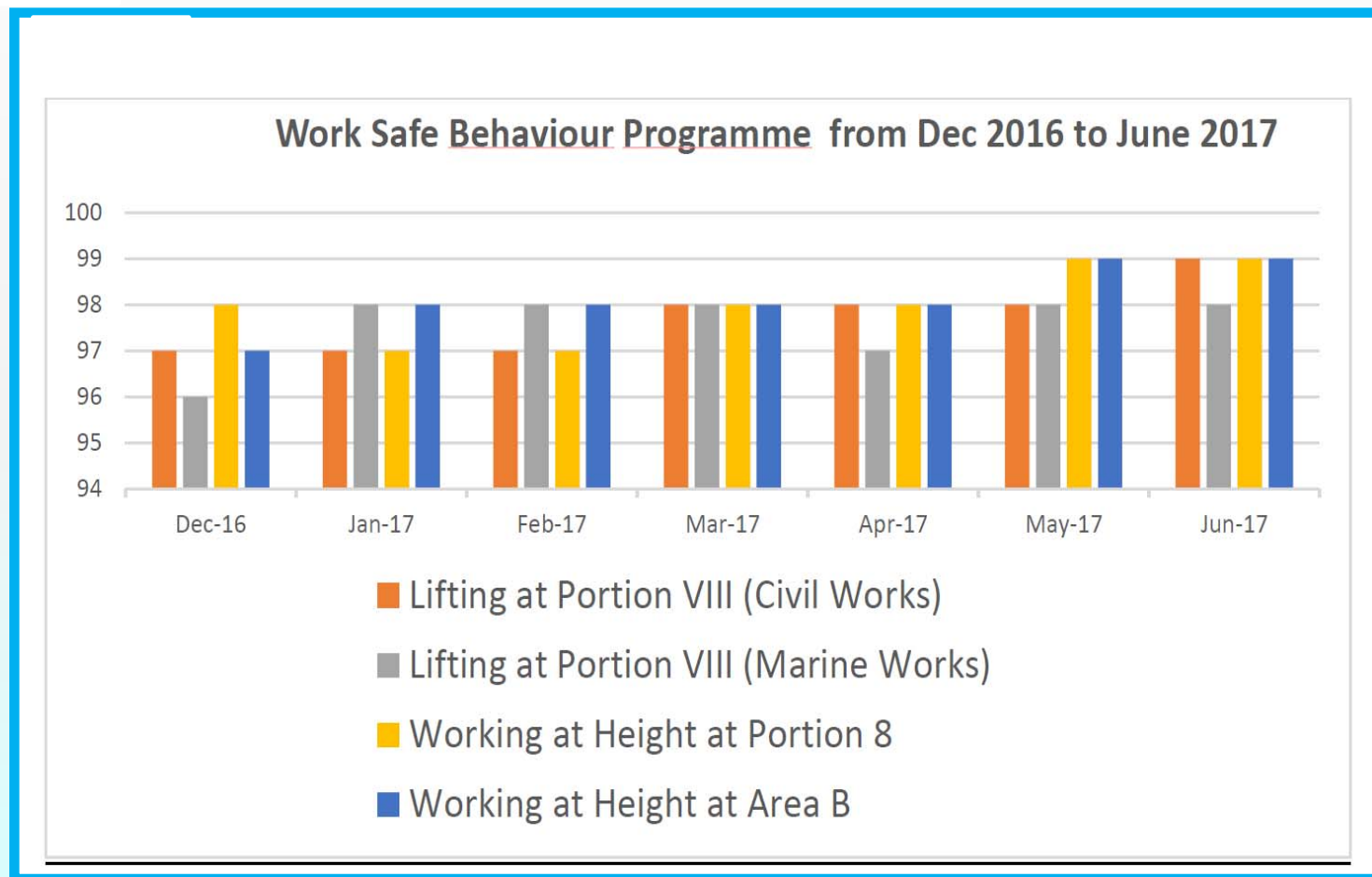


Contract 1 – Section B – Banksman



Contract 2

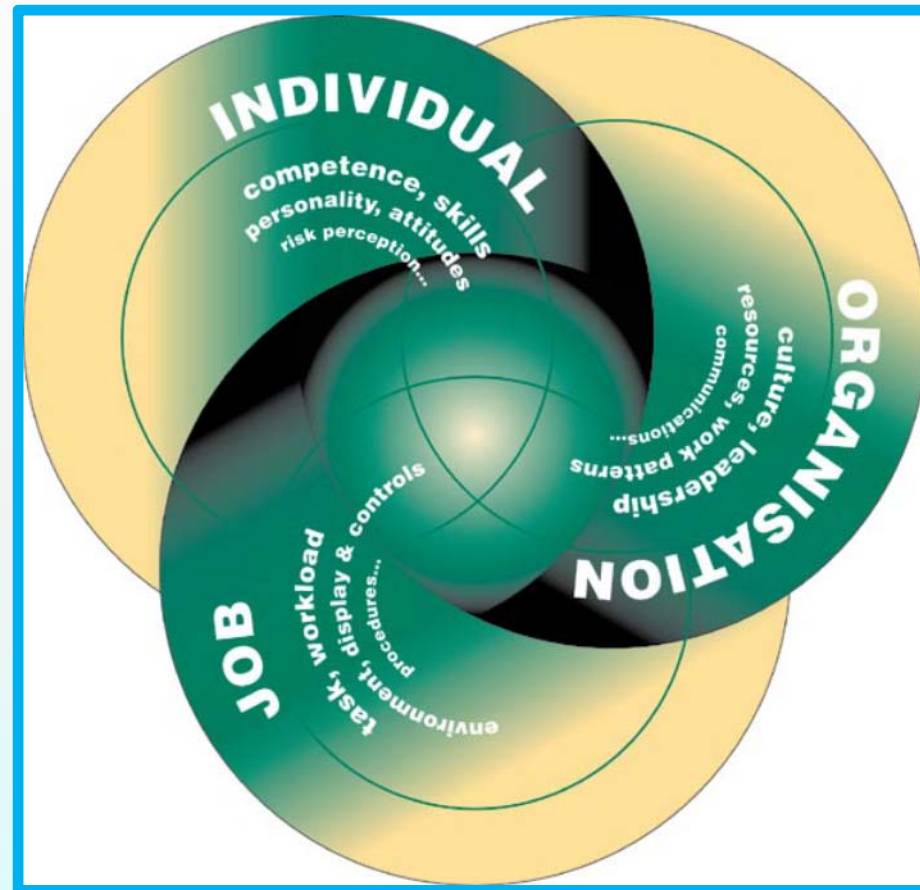
Critical activities selected – (i) Mechanical Lifting & (ii) Working at Height



Contract 2

- Baseline was found to be around 75% for both critical activities.
- Both critical activities – lifting and working at height have reached its objectives achieving 95% after a series of tool box talks and training.
- Rewarding good performers under the BAP with supermarket coupons on at a fixed time interval.
- Foremen in charge of the areas with good performance are also rewarded.

Summary



End of Presentation
Thank you