

**Symposium on Innovation in Safety Engineering and Management**  
**HKIE Safety Specialist Committee – 26 April 2013**  
**Keynote Address by Ir Frank Chan, JP**

Good morning, Ir YUNG, Ir WAI, distinguished guests, ladies and gentlemen.

For better or worse, humanity never ceases to learn. There are all kinds of way to learn but on matters relating to life and death, there is no better way than to learn from history. After all, safety is not to be learned by accident. Back in 1991, Hong Kong Construction Industry's accident rate was as high as 364 per 1,000 workers. Sadly more than one third of our work force got injured at that time.

In the ensuing years, a series of improvement measures were introduced with a view to safeguarding workers from harm. Amendment and enactment of relevant occupation safety & health ordinance, pay for safety scheme, mandatory green card training, site safety cycle, enhancing site cleanliness and tidiness, and repeated construction safety campaigns, you name it, we have done it. As a result, accident rate was reduced to 49.7 per 1,000 workers in 2011. Twenty years down the road, our accident rate had improved by 86%.

But let's not be carried away by the results. If we really care to look far and further, the construction accident rate in the United Kingdom is only 4.2 per 1,000 workers. If we do not want to benchmark with European economies for whatever reasons, what about Singapore which has a lot in common with Hong Kong. Its latest construction accident rate is 4.5 per 1,000 workers. Despite minor variations in calculation methodology, a ten-fold difference is beyond doubt a conscience call for us all.

If we care to look into the fatality figures of our construction industry, you will realise that our performance is no better. After reaching a record low of 0.16 per 1,000 workers in 2010, the fatality rate bounced back to 0.37 in 2011. Our fatality rate is worse than the United Kingdom and Singapore again by many folds.

A closer examination of our safety performance in year 2011 reveals a total of 40,578 industrial accidents, and among them 191 fatalities. That means an injury every 13 minutes and death every two days, leaving our society with many broken hearts and devastated families. During the 12 years of war in Afghanistan since 2001, a total of 2,180 US soldiers perished, translating into one fatality every two days. It is difficult to imagine the risk of workers going to work here in Hong Kong is as dangerous as US soldiers going to war in Afghanistan.

I must congratulate the symposium organising committee for pinpointing innovation for better safety at a time when the construction industry is expecting another decade of prosperity ahead. Innovation is very much synonymous to breakthrough. Innovation is indeed very much needed to bring about breakthrough for construction safety in Hong Kong.

Today, I would like to share with you a few observations and thoughts about innovation and safety. The first is about infertility that leads to innovation of reproductive technology. Sir Robert Edwards, a Nobel Laureate recognised worldwide for in vitro fertilization, started his research in 1960s. It took him near twenty years' labour to give birth to the world's first test-tube baby in 1978. Twenty five years since then, five million test tube babies have been born across the globe, making dreams come true for 200,000 infertile couples every year and bringing hope to many families. However, occupational accidents killed more than 320,000 people worldwide each year according to the International Labour Organisation. Occupational accident alone has more than offset the number of lives created in test tubes.

In the history of safety engineering, innovations are plenty. What is now proven was once only imagined. The first civilian hard hat, which is a prototype of modern safety helmet, was said to be invented in 1912 by Franz Kafka, a simple innovation that becomes a must for construction workers nowadays. Earth leakage circuit breaker, a device that cuts off electricity supply upon detection of electricity leakage, was developed by Henri Rubin in 1955. These innovative and yet simple devices have saved millions of lives. These are vivid examples how hardware innovations have contributed for better occupational safety.

However, we have to appreciate that hardware alone could not be the answer.

During the 18<sup>th</sup> century, the British Government transported large numbers of convicts to Australia. One of the primary reasons for the British settlement was to alleviate pressure on their overcrowded prisons back home. The British Government out-sourced the operation and the first voyage ended with a tragic mortality rate of 42%. Out of a total of 1006 convicts, 267 died at sea and another 150 perished upon arrival. The British government then introduced an incentive scheme by linking payment to the shipping contractor with the survival rate.

Responding to the change in payment terms, the contractor implemented a number of initiatives to improve the hygiene and ventilation for the convicts on board. Arrangement was also made for convicts to undertake physical exercises throughout the voyage. What gets measured gets done, innovation in software such as contract management and supervision in this particular case, succeeded in reducing the mortality rate drastically from 42% to 1% for subsequent voyages. The remarkable reduction of mortality rate for the shipment of convicts is indeed a breakthrough in the 18<sup>th</sup> century. But the maritime industry carries on. With continuous improvement over two hundred years, the mortality rate of sea travel is now less than one in every ten million passenger journeys.

As far as construction safety is concerned, Hong Kong lacks neither hardware nor software. The Government and the construction industry, including all trade associations and trade unions made a joint declaration last year in May, signifying our determination and will towards the vision of Zero Accident. Later this year, again in May, we would kick off the Construction Safety Week to keep the momentum going, with a view to heightening safety awareness and cultivating a deep-rooted safety culture.

As we all understand, safety does not come naturally and should not be taken for granted. It is a synthesis of hardware, software and human-ware. Similar to the birth of a child, safety is the end result of all the hard work, dedication and contribution of everyone involved.

As Hong Kong is now entering into an era of infrastructural development, we need to sustain our on-going efforts as well as innovation to further enhance construction safety. Life can only be lived once. That's why safety is of vital importance to every person. The quest for safety is a never ending journey, and I sincerely look upon everyone here in this hall for your continuous support, dedication, persistence and perseverance to help protect everybody from harm.

Thank you

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