UK DELEGATION 2011

Engineering London for and beyond 2012

Young Members Committee
and Continuing Professional
Development Committee

The Hong Kong
Institution of Engineers

Contents

Ir Prof Reuben P K CHU, JP

President, HKIE

I would like to express my heartfelt congratulations to the Young Members Committee (YMC) for having successfully organised their overseas delegation to London, a smart choice for the visit. As the Host City of the 2012 Olympics, London is rapidly transforming itself into a sporty and competent host to welcome the arrival of the Olympic Torch and thousands and thousands of visitors to the Games. Being the first summer Host City to embed sustainability in its planning from the start, London 2012 has much more to offer than any other periods of time in its history. I am delighted to learn that the 15-member Delegation has been deeply inspired by the Olympic spirit and London 2012's vision to engineer the city.

The teamwork demonstrated by the YMC Delegation under the leadership of Dr Ernest TSANG and Ms Arlene LO, Delegation Manager and Delegation Chairman respectively, has been particularly impressive. With concerted effort, delegates have put together a fruitful trip. With a clear division of work from its inception to the completion of the trip, they have exhibited sterling work in organising and coordinating the entire visit from invitations to advisors, sponsorships solicitation, liaison with overseas organisations to the organisations of local seminars and visits.

It is heartening to learn from our members and counterparts in London that they are impressed by our young members' vision and knowledge in the engineering profession. As the President of the HKIE, I must say that I am proud of you.

Messages

Ir Dr Andrew K C CHAN, JP

Immediate Past President, HKIE

I believe it is important for Hong Kong's young engineers today to have a global outlook for their career development and for securing their competiveness. Over the last few years, the YMC has organised a series of annual delegation to a number of countries, both to experience and learn, and to 'fly the flag" of the HKIE. It is heartening to see the YMC overseas delegation getting ever more ambitious and covering ever more interesting subjects relevant to our own future.

I have been most impressed by this year's YMC's efforts in putting together the details of their delegation to London. I have the good fortune of contributing in a minor way to the programme of the trip, and although I hardly participated in their numerous Sunday meetings, I have nonetheless been overwhelmed by their enthusiasm, hardwork and thoroughness.

The programme was forward-looking and embraced sustainable development considerations. From the infrastructure and venues for the 2012 Olympics, to modern terminus for high speed rail, to zero-carbon housing development. Participants could not fail but to benefit from seeing and experiencing, first-hand, the aims, design, implementation and operation of these impressive facilities.

I am sure the Delegation Report will be impressive, informative and inspiring to other young engineers.

My special tribute to Ms Arlene LO and Dr Ernest TSANG for their leadership and congratulations to all delegates for their accomplishments.

Ir Dr F C CHAN

Senior Vice President, HKIE

I wish to congratulate the successful trip to London that the YMC, under the leadership of Dr Ernest TSANG, has organised. I trust that all delegates have gained a lot after the visit. I am delighted that I could be able to join this YMC UK Delegation.

The theme of the visit is Engineering London for and beyond 2012. London will hold the 2012 Olympics and it is the only city to hold Olympic Games three times. It is amazing that the Stadium and other related facilities for the 2012 Olympics are built within budget and ahead of schedule. It is a good and modern project management skill as well as the green initiatives that have been deployed.

The project on High Speed Train and the Redevelopment of the St Pancras Station are definitely another eye opening where old heritage building can be revitalize with modern facilities. The BedZED low carbon home project demonstrates a sustainable approach for our living environment. We are also impressed by the London Development Agency (LDA) concept and value creation for outer eastern London for delivering their potential.

I would also like to appraise YMC to publish this Report to share their learning experiences as well as giving presentation to allow other members who did not have the opportunity to join the London trip.

Ir K K CHOY

Vice President, HKIE

It is my great honour to have the opportunity to join the YMC UK Delegation this year. I find this overseas visit very meaningful.

I enjoyed much of this London trip with our young engineers. They had demonstrated very good organizing skills with a well-planned visiting programme. They had close contact with local consultants, contractors, professional institutions, universities and authorities such that every item of the programme could be smoothly and successfully executed with minimum alteration.

In our visit to the London Olympic Park, it was noted that all major structures of the Park were nearing completion. It was expected that the construction works would be well ahead of schedule. We were impressed that the planning and design of the Park were well considered for sustainability. The usage of every part of the Park had been carefully thought, not just for the Olympic Games but also for the community functions after the Games.

To learn more about sustainability, we also had visited the BedZED, which was designed to be powered by 100% on-site renewable energy. In this sustainable community, we knew more about green buildings, solar gain, zero carbon energy, water-recycling, sustainable transport, waste recycling, low impact food schemes.

The Delegation also had attended several seminars, presentations and gathering with local engineers. In all these occasions, I appreciated much that our young engineers always shared their views in a positive, constructive and innovative attitude. I am sure they did have reflected their genuine character.

I must say that this is a very fruitful trip. I congratulate Ms Arlene LO and all delegates for their success in the organisation of this overseas visit and the achievements made.

Ir Otto L T POON, BBS, OBE

Past President, HKIE

I moved office recently and I spent quite a bit of time sorting out old photographs and publications of HKIE. In an almost forgotten part of my filing cabinets, I discovered to my real pleasant surprise a booklet "BOSTON HARBOUR CLEAN-UP PLAN – DELEGATION 1995". It took place when I was the Vice President of the Institution and it was the time the Hong Kong Government was planning to build its SSDS (Strategic Sewage Disposal Scheme) now known as HATS (Harbour Area Treatment Scheme) at Stonecutter Island. It was also the first time that I accompanied YMC on an overseas visit which brought back memories.

Since then I had the honour and pleasure to take part in a number of overseas and Mainland visits organised by YMC. What I find amazing is that in spite of time passed, I find the same vigour and enthusiasm in planning and executing the visits with increasing professionalism in designing and publishing the Delegation Report. It is definitely a good way to broaden the vision and widen the management skills of young enterprising engineers.

While people in Hong Kong is increasing concerned about the built environment, conservation of heritage buildings, and the cityscape in general, the visit to London Olympic sites gave to the delegates an opportunity to witness first-hand how to convert an old derelict part of the city to a world class athletic community ready for next year's Olympic Games with sustainable use of the facilities after the event. How the entire project was design, planned and constructed within budget and ahead of schedule is of particular interest to the delegates.

Apart from the Olympic sites, visits to an Eco-city, some of the land marks in London, and renovation and revitalization of the King's Cross and St Pancras Stations are added bonus. I believe we all had learnt a lot from this visit.

In closing, I must congratulate Ms Arlene LO, Dr Ernest TSANG and the delegates for their excellent effort is organizing this visit almost to perfection; and thank them for inviting me to participate in this meaningful trip.

Ir Gary C W KO

Chairman,
HKIE-Continuing Professional
Development Committee

Herbert Spencer, who coined the concept of "survival of the fittest" once said, "The great aim of education is not knowledge but action." The findings of Charles Darwin from the voyage of the Beagle, I trust, inspire this saying of Spencer!

Amid challenges and limited resources, the YMC has organised another overseas visit in this Session. I must praise the theme and place of visit of the Delegation. Not because of my fond of the city, but it is a completely different dimension of the Olympics when compared with the last one in Beijing. No world renowned structures are to be built! The amount of construction can never be close to the scale in the Chinese capital. After all the expenditure in the 2012 Olympics will be a fraction of that in 2008. Yet our young engineers have decided to witness the work of our fellow engineers in the UK to make the best out of the situation and to manage to deliver on time.

I am privileged to spend a couple of days with the Delegation to visit and meet different engineers. I learn that this opportunity of peer learning and development in the entire seven-month course of the Overseas Visit Delegation will be shared to all HKIE members. YMC has always been willing to promulgate the experience to all, including senior, members. HKIE-Continuing Professional Development Committee thereby has no difficulty to face scrutiny, if any, towards the financial support provided!

Lastly, I would congratulate the YMC in particular Ms Arlene LO and her team to have organised this successful London Visit.

Ms Arlene W L LO
Delegation Chairman / Treasurer,
HKIE-YMC Chairman

In succession to the delegation experience in a roll, I am pleased to see that we have made another success to the Overseas Delegation 2011 – UK Delegation. This Delegation provided a platform for young engineers to gain not only professional knowledge through visiting large scale projects but also international exposure through sharing views and ideas with engineers around the world, particularly in the UK where shares similarities with Hong Kong.

Through this Delegation, I wish our delegates can learn the needs and aware of concerns in urban revitalization in terms of town planning, especially the differences of practices and motivation between the UK and Hong Kong, and the infrastructure development that facilitated the rejuvenation. In addition, delegates can experience the success of the urban revitalization through the large scale project such as 2012 Olympics. The most important thing is, delegates can be inspired and think about revitalization instead of reconstruction for a more sustainable Hong Kong by their engineering contributions and efforts.

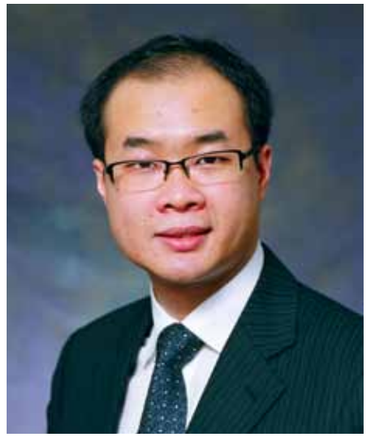
I am pleased to see that this Delegation is supported by the President, Senior Vice President, Vice President, Past President, senior members and the secretariat of the Institution. All these supports are greatly appreciated. I would like to express our particular thanks to Ir Prof Reuben CHU, Ir Otto POON, Ir Dr F C CHAN, Ir K K CHOY and Ir Gary KO who joined this Delegation to give us valuable advice and share their view on this Delegation.

This Delegation is made possible by the generous financial assistance from the HKIE-Continuing Professional Development Committee and sponsored companies, which are gratefully acknowledged.

I would also like to thank all hosting organisations for giving us overview of various large scale projects, especially the Olympic Park. Particular thanks are given to various institutions and colleagues for sharing with us their insight into the engineering development in the UK.

Lastly, I must thank the hard work from all delegates, particularly the great effort made by the Delegation Manager, Dr Ernest TSANG, and the two Deputy Delegation Managers, Ir Leo CHAN and Mr Ambrose CHEN, that make this Delegation a successful and memorable one.

To convey our findings on this Delegation, I would like to invite you all to study this Delegation Report in details. I hope that you could share our view as if you were to participate in this Delegation.



Dr Ernest K W TSANG
Delegation Manager,
HKIE-YMC Deputy Chairman

In the past four decades, Hong Kong has a rapid development during the "blooming" period of local economic and construction industry. During this epoch, many buildings and infrastructures have been built that makes Hong Kong a highly urbanised city. Recently, Hong Kong faces new challenges in several major infrastructure developments. Based on this reason, the YMC arranged the UK Delegation to acquire their experiences in urban revitalization and sustainable development. Our study was focused on three main aspects, which comprised the "Olympics and Beyond", the "Town Planning" that was done in support to the Olympics, and the corresponding "Infrastructures" that were developed.

On behalf of this Delegation, I would like to take this opportunity to express our sincere thanks to the overseas and local organizers. Without their support and arrangement, our Delegation trip would not make a success.

I would also like to express our sincere gratitude to our advisers, Ir Prof Reuben CHU, the President of the HKIE, Ir Dr Andrew CHAN, the Immediate Past President of the HKIE, Ir Dr F C CHAN, the Senior Vice President of the HKIE, Ir K K CHOY, the Vice President of the HKIE, Ir Otto POON, the Past President and Ir Gary KO, the Chairman of the HKIE-Continuing Professional Development Committee. The advisers had given considerable supports in conducting interview, attending meeting in planning stage and joining our visit in London. Their guidance during this process was valuable to this trip as well as our delegates.

Special thanks are given to Ir Thomas LAI, the Chairman of the HKIE's UK Chapter for giving us a tour around London and arranging social events and seminars.

Many thanks are expressed to the HKIE-Continuing Professional Development Committee and our sponsors, without their generous financial support, we would not be able to carry out this Delegation study.

I am indebted to all delegates for their supports and endeavour to preparing the trip, conducting various studies and writing this Report.

Last but not least, I need to express my thanks to the Deputy Delegation Managers, Ir Leo CHAN and Mr Ambrose CHEN for their works and great effort in organising this Delegation; as well as Ms Arlene LO, the YMC Chairman, for inviting me as the Delegation Manager.

Introduction

Background of YMC Delegation

Since 1991, YMC has organised delegations to specially chosen cities around the world. In each delegation, there is a chosen engineering theme aims at achieving the following goals:

- To widen the horizons of young engineers under that chosen theme which YMC believes is crucial for young engineers of today to learn as they progress to become engineering leaders of tomorrow;
- To allow delegates to personally appreciate the latest engineering solutions around the globe and assess the applicability of these solutions in Hong Kong;
- To enhance relationship between the HKIE and overseas engineering institutions; and
- To promote Hong Kong and its engineering practices.

These goals can be achieved through the delegation itself, as well as through a series of related seminars and technical visits held locally in Hong Kong, before and after the delegation.

The chosen theme of the UK Delegation 2011 – Engineering London for and beyond 2012

Following the success of the Australia Delegation 2008, the Dubai Delegation 2009 and the Denmark Delegation 2010, YMC organised yet another Delegation in 2011, and the chosen destination was London, the UK.

The chosen theme of this Delegation, "Engineering London for and beyond 2012", has multiple meanings. As the host city of the 2012 Olympics, London has promised to bring to the world a sustainable Olympic Games. Therefore, the first definition of the theme focuses on learning the sustainability features being applied in building the Olympic venues and how these features are done today in the hope of creating a better future for tomorrow.

Secondly, London authority has placed great emphasis on treating the Olympics as an opportunity to revitalise the old East London. Thus, the second meaning of the theme is on how London uses the Olympics as a catalyst to stimulate urban renewal, and plan for the long term benefit of the residents.

Thirdly, to cope with the surge in transportation demand during the Games, implementation of new and enhancement of existing railway lines and infrastructure projects are currently underway. Hence, the last meaning of "Engineering London for and beyond 2012" is to study how these upgraded transportation systems will benefit residents even after the Games has finished.

Objective

The objective of this Delegation is to allow young engineers to learn personally how engineers in the UK apply their professional knowledge to improve the quality of life. 15 young engineers, as known as the delegates, visited London, the UK, one of the largest urban cities in Europe, and possibly around the world. Major infrastructure projects are constantly underway in the city. Moreover, the city offers a high priority in its sustainable development, as it claimed the 2012 Olympics as one to be "environmentally sound, economically viable and socially responsible" (London 2012, 2008). Against this backdrop, the delegates are divided into three study groups, with each focused to study one chosen area:

- Olympics and Beyond: sustainability features of major venues for the 2012 Olympics and its legacy;
- Town Planning: development and renewal of urban areas; and
- Infrastructure: railway and other infrastructure projects.

By visiting selected projects' sites and exchanging with relevant professionals, the delegates are able to widen their exposure in different engineering solutions that their counterparts in the UK applied. Moreover, having studied comparable projects in Hong Kong, the delegates are able to compare and contrast what are done in the UK with those done locally, thus enriching their training experiences as they move to become future leaders in the engineering industry. This Report encapsulates the results of the study conducted by the 15 young engineer delegates.

Composition of Delegates

Promotional materials of this Delegation were published in October 2010. An overwhelming response of more than 50 applications was received. After being interviewed by our advisors, 15 delegates were selected. These delegates come from different engineering disciplines, including Building Services, Chemical, Civil, Environmental, Geotechnical, Information Technology, Mechanical and Structural. They are working in different sectors ranging from public organisations to private companies and consultants. The delegates are in essence a representation of the overall young engineer community in Hong Kong.

References:

- "London 2012 commits to sustainable sourcing." 18 April 2008. London 2012. 15 May 2011 *http://www.london2012.com/press/media-releases/2008/04/london-2012-commits-to-sustainable-sourcing.php*

Why London

Throughout human history since the Romans, London has grown into one of the world leading cities in finance and cultural capital. It has experienced plague, civil war, aerial bombardments, terrorist attacks and so on, and it still remains its significance in being one of the world's most influencing cities. To further increase international exposure, the UK Government has decided to enter the bid for the 2012 Olympics withheld in the East London Royal Docklands Area, including Stratford, Newham and others.

London Docklands has been the shelter for ships and marine transport since the Victorian eras. However, ever since the bombardment by the German during the Second World War, the prosperity in Docklands dropped dramatically. This has caught the UK Government's attention in the 80s, and subsequently it set out the determination of redeveloping Docklands in East London, where Margret Thatcher, the former Prime Minister, designated as the second financial hub in London. Since then, the living standards in Docklands have been raised; the most obvious success is Canary Warf where it boasts the financial activities and contains many of the tallest building in the UK.

Identifying Areas of Study

Winning the bid

In June 2005, the International Olympic Committee announced the 2012 Olympics are scheduled to take place in London, the UK. The key message behind the bid was that the Olympics would provide the UK with a Legacy: transforming people's lives through the regeneration of one of the poor areas in London; inspiring the new generation to a wider range of sporting activities and a greater extent of achievements; and supporting the Olympic movement in the future.

Legacy after 2012

The London Organising Committee of the Olympic Games and Paralympic Games (LOCOG) claimed that through the Olympics, not only would the living standard in East London be improved, the Olympic Park itself and its surrounding regions could also be transformed into one of the largest park in Europe for the next 150 years after the Games (London 2012, 2008). Hence legacy is one of the important focuses in this Olympics.

Sustainability

The bidding team emphasises that the London Games would be the first Olympics that "embed sustainability in its planning from the start" through the implementation of One Planet Living®. This Olympics aims not only to be "green", but also to ingrain "Sustainability" into the thinking of everyone involved in this project. Thus, from planners to construction workers, from those who work at the Park to those who come to participate and spectate, and from commuting to the Park to living in the Park, sustainability becomes the guiding principle for all.

Situation in Hong Kong

As buildings constructed during the booming period are ageing rapidly, there is a growing need of redevelopment in many parts of Hong Kong recently. At present, there are about 4,000 buildings aged 50 years or above in Hong Kong. Despite various government incentives such as the establishment of the Urban Renewal Authority (URA), the situation remains unsatisfactory and continuously endangers the public safety.

With the urgent need to solve this issue, the URA released a new Urban Renewal Strategy (URS) in February 2011, which sets out approach to implement the 4R strategy (Redevelopment, Rehabilitation, Revitalisation and heritage pReservation) within the community. The URS emphasises the "people first, district-based, public participatory" approach to balance the interests and needs of all sectors in the community without sacrificing the lawful rights of any particular group. Currently the URA has carried out projects which aim to redevelop the community through the implementation of 4R. Throughout the projects, public engagement is an important focus by the URA, and extra care is taken to gain support from the community.

Initiatives to go to London

With the imperative to reactivate the aging community, engineers shall play a great role in shaping the redevelopment policies. With the different approaches taken by authorities in the UK and in HK, the team believes that through this Delegation, the 15 young engineers will be able to acquire deeper knowledge on the different strategies that can be applied in redeveloping a community. Furthermore, with the macro-scale Olympic projects in hand, London is a case of example for the team to study on community redevelopment, public engagement, as well as the sustainability implemented within.

References:

- "London 2012 commits to sustainable sourcing." 18 April 2008. London 2012. 15 May 2011 *http://www.london2012.com/press/media-releases/2008/04/london-2012-commits-to-sustainable-sourcing.php*

2012 Olympics, the world attention gathering event, has triggered the revitalisation of East London, and stimulated the infrastructure development in London.

Aiming to study and appreciate the practices in the UK, share what we learn during the seven-day trip, and ultimately furnish the way forward to Hong Kong practice; the three study groups have conducted a series of study.

By distinguishing the strength of the UK and reviewing the situation in Hong Kong, the areas of interest are studied and identified for this Delegation. The major study areas are outlined in this chapter.

The delegates are divided into three study groups, with each group focuses on identifying one of the following:

- Olympics and Beyond,
- Town Planning,
- Infrastructure

Olympics and Beyond

The Olympics and Beyond Group studied sports facilities locally, as well as those under construction for the 2012 Olympics in London. More specifically, the study group focused on studying the experience of engineers in London in building the 2012 Olympics, these include the planning, design and construction of major Olympic facilities such as the Olympic Park, the Olympic Stadium and the Aquatics Centre, as well as supporting infrastructures such as the Energy Centre and the International Broadcasting Centre, which are going to facilitate a smooth running Olympics. In particular, the delegates would like to know how these different facilities and supporting infrastructures will be used after the Games.

By critically analysing the experience learnt in building the 2012 Olympics, the group aimed to give recommendations to the different stakeholders on how mega projects in Hong Kong should be handled. The two chosen mega projects in Hong Kong are the Kai Tak Development (KTD) and the West Kowloon Cultural District (WKCD).

It is true that the Olympic development, the KTD and the WKCD are projects built to serve different purposes. Nevertheless, there are commonalities between them, from engineering planning, e.g. both emphasize green and sustainability, to construction method, e.g. re-development of a large site within the city centre, from organization management to public consultation, there are lessons to be learnt from London as we make progress on the KTD and WKCD. Therefore, it is important for the delegates to acquire relevant knowledge through this Delegation, and be able to bring the knowledge back to Hong Kong and have them applied in the KTD and the WKCD, both projects of which are currently under the planning and public consultation stages.

Town Planning

The town planning strategies in Hong Kong such as the Hong Kong 2030 and the Urban Renewal Strategy (URS) issued by the Government were reviewed. The study group analysed the need of Hong Kong and identified three aspects of interest - public engagement, urban renewal, and environmentally friendly development, which would be further studied in the UK.

The Hong Kong 2030 outlines the blueprint of the development of Hong Kong for the next 20 years. At territorial level, not only will new districts be developed, some old districts are suggested to be renewed and regenerated. In order to characterized each district with its distinct attribute, districts will be designated to different specific functions. Meanwhile, the blueprint also recommended directions to achieve quality living environment, enhance competitiveness, and strengthen the links with the mainland in achieving Hong Kong's vision as an "Asia's World City" (HKSAR Government, 2007).

The target of the URS is to improve the living conditions of residents in dilapidated urban areas. The new URS also adopts a "People First, District-based, public Participatory" approach, which is comprehensive and holistic. Through public engagement, urban areas are rejuvenated by way of Redevelopment, Rehabilitation, Revitalization and heritage pReservation which are known as the 4R strategy (Development Bureau, 2011).

Hong Kong has a need in reducing the carbon footprint. Since building is one of the major electricity consumers in Hong Kong (EMSD, 2010), it is important to explore new techniques in designing a green community. Our focuses are not limited to green features involved in the project but also the implantation of the "green" mindset into citizen's life style.

To facilitate the study and analysis on public engagement, urban renewal and the environmentally friendly development, this Delegation trip had visited to BedZED - the eco-village, and the London Development Agency (LDA) – the authority that involves in the associate revitalisation and Olympics.

Infrastructure

The study group studied transportation policy in Hong Kong such as development of railway systems and road networking. The group believes that urban renewal and infrastructure comes in together, therefore the group also considered some technical aspects on infrastructure which support the URS, in particular a case study on Land Remediation was studied.

MTR Corporation Limited claims "Railways play a vital role in serving the transport needs of Hong Kong". To address the increasing transport demand, the Railway Development Strategy 2000 (Transport Bureau, 2000) proposed to reinforce the railway network. Further to the existing and committed 11 rail lines in 2000, the railway network is anticipated to expand by constructing locally the Shatin to Central Link, Kwun Tong Line Extension, West Island Extension, and South Island Extension; and outwardly the Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL).

The Central-Wan Chai Bypass (CWB) project was chosen to be the road network of interest in the study. Described on the Government webpage, it is "the missing link of the strategic trunk road network along the north shore of Hong Kong Island". Upon completion, it is expected to relief the traffic congestion on Island Easter Corridor, and improves the road connectivity to the coastal area at North Point.

Land Remediation is important in reclaiming a used land for legacy and future use. The group studied a case of Cheoy Lee Shipyard, where the soil has been contaminated with naval and marine pollutants. Various techniques were used to remediate the land before they can be used as today's Hong Kong Disneyland. Similar case was also studied for the KTD, where the contaminated soil in former airport would be remediated before the site can be transformed into a super cruise terminal (CEDD, 2011).

To compare with our cases in Hong Kong, the group studied a number of publications by the Mayor of London and other stakeholders in the industry. By arranging visits and exchanges about railway, the London development, and the Stratford land remediation, the team hope to draw comparison to the current railway and roadway network development and land remediation.

Study Areas

- Sports Facilities
- Sports Infrastructure
- Planning of 2012 Olympics and Beyond

- Public Engagement
- Urban Renewal
- Environmentally Friendly development

- Railway Network Development
- Roadway Network Development
- Land Remediation

With the study areas, a series of local events were arranged. Public Engagement and the "people-oriented" urban renewal approach was learnt through the seminar on the Redevelopment of Upper Ngau Tau Kok Estate Phase 2 & 3; the development of railway system in Asia and electrical and mechanical system for XRL were learnt through the relevant seminars. While the delegates visited the Hong Kong Sports Institute to study the current usage of sport venue, and CWB community liaison centre to study the roadway connection, they also visited to former North Kowloon Magistracy Building and URA Kwun Tong Resource Centre to study the new strategies in revitalization.

Details of these events can be found in the "Local Events" chapter. The overseas events in this Delegation were also arranged accordingly, and further detailed in the "Overseas Events" chapter. By selecting the above areas, the delegates wish to convey the sounding insights in the coming chapters.

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Overseas Events

21 March am

Bus Tour at the Olympic Park

The first official event of the Delegation was a one-hour bus tour at the Olympic Park. A tour guide from the Olympic Delivery Authority (ODA) explained to us the functions and features of the venues. Although the Olympic Park was still under construction, most of the major venues such as the Olympic Stadium and Aquatic Centre were to be completed in 3rd quarter of 2011. Other facilities such as the International Broadcast Centre, Velodrome, Olympic Village, Basketball Arena, Handball Arena, Hockey Centre, and Energy Centre would be completed by the end of 2011.

Map of the Olympic Park

The Olympic Stadium

The Olympic Village

The Aquatic Centre

Presentation by Arup

Subsequent to the Olympic Park Bus Tour, Mr Stephanos SAMARAS from Arup gave us a presentation on the Olympic Park design. The Park was designed by the EDAW Consortium (including EDAW and Buro Happold) in collaboration with Arup and Atkins. One of the major challenges of the project was to turn the contaminated land with the size of Hyde Park into a new urban park with improved infrastructure and world-class sporting facilities and to leave a legacy after the Games. Stephanos also briefly introduced the programme of the Olympic project, and illustrated the transformation of the temporary structures. To match with the 2012 Olympics colours that form the brand identity, bridges throughout the park would have one of the four colours applied to the underside depending on their locations in the Park. This also assisted in navigation across the Park and allowed for potential arts interventions in the future.

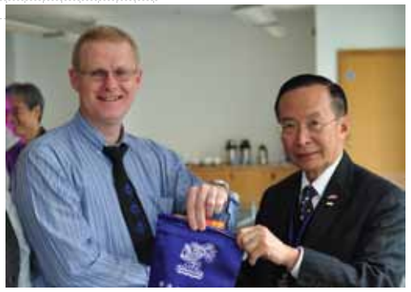
21 March pm

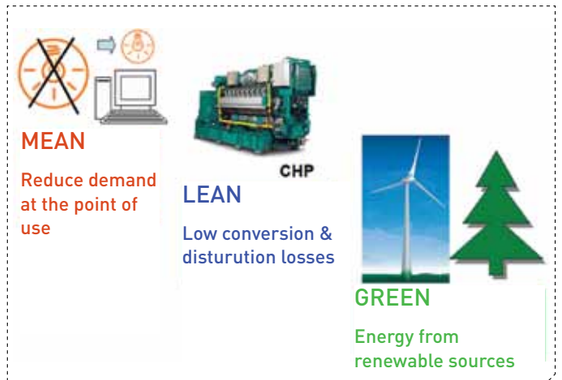
Presentation by Buro Happold

The delegates visited the headquarters of Buro Happold at 17 Newman Street. Unlike the traditional office design of consulting firms, the conference room of Buro Happold was located on the G/F with a large view facing the scene of the street. This design was to inspire their engineers to get in touch with the local culture and people.

The presentations given by BuroHappold were focused on different aspects of the Olympic Park design.

The speakers pointed out that the Olympic Park was currently the biggest low carbon development in the UK. To match with the ODA's Sustainable Development Strategy, Buro Happold had adopted a low carbon strategy, known as "MEAN, LEAN, GREEN", to reduce the energy demand and distribution losses as well as to explore renewable sources. The overall target is 20% emissions cut using on-site renewables.



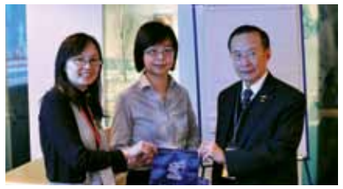


Olympic Park Low Carbon Strategy

Buro Happold considered the London Olympic Stadium to be the centrepiece of the 2012 Olympics. As for the track conditions, it had been verified with the computational fluid design simulation and wind tunnel tests that the World Records would only be valid if tail winds were less than 2 m/s. After the Games, the upper concourse would be removed to reduce the capacity from 80,000 to 25,000 seats.

Among the Olympic Park utilities, the new Energy Center refurbished from an existing building was a highlight. It would provide power, heating and cooling across the Park during the Games and for the new buildings and communities that would develop after 2012. Carbon reduction from the Combined Heat and Power (CHP) was expected to be over 30% per annum while that from the biomass boilers to be more than 6% per annum. This modular design allowed for future expansions, including alternative fuel to natural gas.



21 March pm

Presentation by CIRIA

CIRIA stands for the Construction Industry Research and Information Association. It is a non-profit association that operates across market sectors to deliver business improvement services and research activities for those who are engaged with the delivery and operation of the built environment.

During our visit, the speaker, Ms Joanne KWAN, pointed out the site of the Olympic Park was originally a piece of heavily contaminated land that contained heavy metals and invasive weeds. Land remediation works were therefore necessary before other construction works could proceed. Joanne also mentioned this was the first Olympic Games that had carried out a carbon footprint study, and the ODA had set out ambitious targets and commitments regarding climate change and other sustainability issues.

22 March am

Presentation by Arup on High Speed 1 & 2 cum visit to the St. Pancras station

The delegates went to the headquarters of Arup at 13 Fitzroy Street for a presentation on High Speed 1 & 2. The speakers, Mr Colin STEWART and Leszek DOBROVOLSKY, explained to us that High Speed 1 (HS1), officially known as the Channel Tunnel Rail Link, was the only high-speed route in Britain, running from London through Kent to British end of the Channel Tunnel. It was one of the UK's largest civil engineering projects, encompassing many new bridges and tunnels with a combined length nearly as long as the Channel Tunnel itself.

The proposed High Speed 2 (HS2) was a high-speed railway between London and Midlands, the North of England, and potentially at a later stage the central belt of Scotland. If the HS2 plan was approved, construction would begin in 2017 and the first section would start operating in 2025 with a speed up to 250 mph (400 km/h).

Following the presentation, Leszek guided us to the St. Pancras station. It was the central railway terminus for the high-speed line in London. Its Victorian style architecture formed a major icon in London. The station had now been transformed into a modern world-class terminal with 15 platforms serving numerous railway lines, including the Eurostar service. The most important part of the station refurbishment was the Barlow Shed extension, which was a contemporary re-working of the original train-shed. Since the 40 m Eurostar trains were twice the size of the typical domestic trains, glass extension had been designed to house the extra long Eurostar strains, which was a brilliant combination of the ancient and modern architecture style.





23 March pm

Visit to BedZED

The delegates visit an eco-village named BedZED in Hackbridge. BedZED, refers to "Beddington Zero Energy Development", is the UK's largest mixed use sustainable community. It is an environmentally friendly housing development in Hackbridge, London. The 99 homes and 1,405 m^2 of work spaces in the community were built from 2000 to 2002, adopting several sustainable principles such as energy and water efficiency, green materials, waste recycling and environmentally friendly transportation. The project has received many awards worldwide regarding design, architecture and energy conservation.

During the visit, the delegates was guided by Mr Matt SULLIVAN, the Exhibition and Training Manager. Matt showed us around in different dimensions, from the arrangement of a typical three-bedroom apartment to the design concept of the whole community. The design aimed to give practical solutions to the heating and water usage problems, and to offer the residents sustainable choices such that the community could improve their quality of life without compromising the environment.

25 March am

Presentation by LDA

The delegates visited the office of the London Development Agency (LDA) at Palestra. LDA is the Regional Development Agency for the Greater London. Mr Steve KENNARD, the Director of Land and Development of LDA, gave us a seminar. He explained to us how LDA worked to deliver the Mayor's vision for London to be a sustainable world city and to get the most from the 2012 Olympics. Steve also illustrated how the growth of the London city gradually shifted to the east, and how the public transport investment benefited East London.

The 2012 Olympics would not only leave a legacy, but also bring potential development opportunities to the adjacent regions. Steve introduced to us the six Olympic fringe master plans; these areas included: Royal Docks, Royal Victoria, West Silvertown, Royal Albert Dock, Royal Albert Basin and North Woolwich. Population growth and business opportunities were expected in these regions for future decades beyond 2012.

25 March pm

Visit to Greenway

The delegates visited the Greenway under the guidance of two site engineers from Atkins – Mr Ken LAM and Mr Mark TAYLOR. Greenway is a re-designed walking and cycling route that carves through East London at high level and overlooks the whole Olympic Park.

Being one of the design firms of the Olympic Park, Atkins has been undertaking various works for ODA, including enabling works, highway structures and bridges, utilities and landscaping works. The Atkins staff mentioned that 90% of the materials arising from the demolition works would be reclaimed for reuse on site or recycled as it was one of the London 2012 policies.

"Inclusion" is one of the five themes of the London 2012 Sustainability Plan, aiming to host the most inclusive Games to date by promoting access, celebrating diversity and facilitating the physical, economic and social regeneration of the Lower Lea Valley and surrounding communities. With such theme in mind, ODA is committed to sourcing materials and resources both locally and across the UK, which promotes supplier diversity and maximises opportunities for the UK minority-owned businesses and social enterprises (London 2012, 2009).

Photos of Greenway

References:

- *London 2012. "London 2012 Sustainability Plan – Towards a one planet 2012." December 2009 (2nd Edition).*

Local Events

To enrich the Delegation, ten local visits and seminars were organized from December 2010 to April 2011. These events allowed delegates to familiarise and compare the situations in Hong Kong and the UK on the focused study areas. On top of that, the appreciation to the effort of Hong Kong professionals on these aspects can be shown.

18 December 2010
Local Visit Series:
Shatin Sewerage Treatment Works Stage 3 Extension

11 January 2011
Local Seminar Series:
Experience sharing on public engagement in housing project
Speakers: Ir Martin K K CHEUNG / Mr Stephen Y C YIM

19 January 2011
Local Seminar Series:
Technical Seminar to a Zero-E Pilot Project in Chongqing, Sichuan Province
Speaker: Mr Divid LITTLER

26 February 2011
Local Visit Series:
North Point Reclamation Contract of the Central – Wan Chai Bypass and Island Eastern Corridor Link Project

1 March 2011
Local Seminar Series:
E&M Design for Guangzhou-Shenzhen-Hong Kong Express Rail Link
Speaker: Ir Alvin WK LUK

12 March 2011
Local Visit Series:
The former North Kowloon Magistracy Building

30 March 2011
Local Visit Series:
The Hong Kong Sports Institute

9 April 2011
Local Visit Series:
The URA Kwun Tong Resource Centre

16 April 2011
Local Visit Series:
EcoPark & Champway Technology Limited

20 April 2011
Local Seminar Series:
Seminar on "Railway Development in Hong Kong and Neighbouring Cities since the 70's"
Speaker: Ir Albert YUEN

The local events series started with the technical visit to Shatin Sewage Treatment Works. In view of the increasing population and rapid regional development in Hong Kong, handling tones of daily produced sewage has been a big challenge to the society. The half-day visit provided an opportunity for young engineers to familiarise the sewage treatment facilitates and appreciate the principle of secondary sewage treatment operation including biological treatment and sludge digestion process. During the visit, the representatives of the Drainage Services Department detailed the commentaries on the functions and characteristic features of the facilities. Since the treatment plant located closely to the residential premises at Shatin, odour control was one of the challenging tasks in daily operation. Subsequently, the mitigation of odour problem were presented.

Solid waste management is another problem needed to be addressed. As the three strategic landfills are expected to be filled up latest by 2018, Hong Kong faces pressure to address the solid waste problem. Regarding this issue, a technical visit of EcoPark & Champway Technology Limited was held. The Visitor Centre of Eco Park is equipped with life-size model of landfill, virtual 3D multimedia exhibit, and interactive games and video. While green building features are applied within the Ecopark, the park itself offers necessary services for the recycling trade development. Apart from incineration and landfill, recycling is definitely a sustainable solution to waste problems. Champway Technology Limited, a recycling company, gave an introduction on their work of converting the collected waste cooking oil from restaurants to crude biodiesel and glycerine through chemical treatments. The Government has announced a comprehensive waste management strategy and action plan to handle the solid waste properly using a multipronged approach. To echo this target, the Eco Park serves a commercial, waste recycling and recovery facility. This visit provided young engineers inspirations towards the disposal strategy in Hong Kong, the importance of waste reduction, as well as the full potential of the local recycling industry.

In recent years, public engagement plays increasingly a crucial role in the district development projects in both Hong Kong and London. To study the participation of the general public in local infrastructure projects, a seminar on public engagement in public rental housing projects in Hong Kong was organised. Mr Stephen Y C YIM, the Senior Architect of Hong Kong Housing Authority (HKHA), shared the experience of public engagement in the project of HKHA – "The Redevelopment of Upper Ngau Tau Kok Estate Phases 2 & 3". The rehousing of the residents has followed the "People-Oriented Approach" to sustain the community. Stephen explained how they delivered

this project through public engagement. Communication with the tenants was started in the planning stage of the new reception estate. Suggestions of the tenants were incorporated to make the estate more suitable to cater the elderly and disabled on top of the sustainable design. On the other hand, actions were taken to preserve the culture and memories of residents; many activities such as heritage exhibitions, site visits and various workshops were organised to strengthen the social cohesion of the community. All of these efforts resulted in a smooth rehousing of residents into the new sustainable community.

Certainly, heritage preservation and revitalization is one of the four major elements of urban renewal. A visit to the former North Kowloon Magistracy Building was organised to understand the approaches of cultural heritage preservation in Hong Kong. Mr Bob DICKENSHEETS, the Director of Construction and Preservation from the Savannah College of Art and Design (SCAD, the current tenant of the building), briefed the major renovation work conducted in the revitalization of the building. He highlighted that retaining most of the structures and features of the Magistracy building, and minimizing damages to them were the key emphases of the project. Besides preserving the symbolic constructional features, new systems are installed, such as LED lighting, up-to-standard fire services systems and an off-building cooling system, in order to satisfy the needs of occupants. The efforts of the tenant (SCAD) and the Heritage's Office on heritage building preservation and maintenance were shown. This inspiring visit reminded young engineers to appreciate the beauty of the work of professionals in previous decades.

Decades after the development of the new towns in Hong Kong, it is necessary for them to undergo restructuring to suit the present needs of increasing population and rapid urban development. In this sense, a visit of Kwun Tong Resources Center of Urban Renewal Authority (URA) was organised. Mr Mig W.S. FU, the Assistant Manager of the Kwun Tong Community Development of the URA, shared the experience of redevelopment strategy of Kwun Tong Town Center project. This project is the largest single project undertaken by URA. The major design includes increased open space and greening, comprehensive community, commercial services, transportation services, and community-friendly features like traditional "Kaifong-style" bazzar. Active public engagement activities throughout the entire development were also introduced. After the brief talk, Mig led the participants to walk around the old Kwun Tong Town Center. This helped the young engineers to realise the need of the redevelopment of this area after observing the poor living conditions of the aged buildings, as well as the balance that has to be make between redevelopment and local culture preservation.

By looking urban renewal in a micro level, a major challenge that hurdled the further development of a developed district is traffic congestion. A technical visit of the North Point Reclamation Contract of the Central - Wan Chai Bypass project (CWB) and Island Eastern Corridor Link Project was held subsequently. The North Point Reclamation Contract comprises of 3.3 hectares land reclamation used for the future CWB. The scope of work mainly includes the construction of an approximately 700 m long permanent vertical seawall and the reclamation behind. The major construction activities in the North Point Reclamation site include dredging, seawall foundation construction, blockwork and caisson seawall installation and the associated earthwork behind it. As the reclamation works are surrounded by residential building along the seafront, a community liaison centre has been set up for the project, which is the first liaison centre set up for the government project. The main functions of the centre are to handle public enquiry and complaints, notify the community the project progress, and carry out public engagement activities. With better understanding on the project from the public, the project could be carried out smoothly by addressing public concern.

In addition to the redevelopment and enhancement of urban areas, interactions with the globe, especially the mainland China, are essential to stimulate the economic growth of Hong Kong. To improve the connections with the mainland China, the Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) will be constructed to shorten the travelling time from Hong Kong to other parts of China. Ir Alvin W.K. LUK, XRL Project Manger of MTR Corporation Ltd., gave a presentation on the E&M design and the challenges of the project. The project faces many technical challenges and constraints, like the relatively large configuration of stations in the mainland China, as compared to Hong Kong, as well as their interfacing requirements. Alvin highlighted the detail designs and the challenges of the building services works of the West Kowloon Terminus and Rail System of XRL. Other than the typical building services systems, a wide range of railway systems were also highlighted including ticketing, power supply system – traction, overhead line system, tunnel ventilation system, radio communications system, passenger services system, main control system, rolling stock, and signaling system. The compatibility

between mainland China and Hong Kong, and seamless operation are the key considerations of this project. Being one of the major rail link between the mainland China and Hong Kong, the XRL project must align with the standards and general practices of the mainland China.

Apart from Hong Kong, many developed cities are catching the trend of providing railway networks to enhance its connectivity within the city. Ir Albert YUEN, the planning manager of MTR Corporation Limited, gave a presentation on the railway developments in Hong Kong and the neighbouring cities such as Singapore, Shanghai, Guangzhou, Taipei, Abu Dhabi and Dubai. The railway history in Hong Kong began in late 1910, and the network has expanded to over 200 km of railway lines till 2000. Not only did the network serve the urbanized areas, new towns are also accessible through railway. The heavy reliance on public transport in Hong Kong is shown by the statistics of saying that 36% of the trips generated everyday are contributed by rail. Albert pointed out that due to the rapid railway development in the neighbouring cities, it is crucial to find other approaches in Hong Kong to keep up the pace with the rest of the world. Some potential developments would be to infill secondary corridors and moderate growth areas with new types of rail, such as automated people mover and bus rapid transit. The presentation was concluded by highlighting the possibility of fare integration and the way forward in promoting land use and rail transport integration. It is believed that railway does not only provide a relatively sustainable solution for road congestion, but also affect the urban development and people's life styles.

Last but not least, since looking into the Olympic facilities built in London was one of the highlights of this Delegation, a visit to the Hong Kong Sports Institute was held to understand more on sports development in Hong Kong. As Hong Kong is a small city, it is not appropriate to have a direct comparison of our local sports facilities with either the grand Olympic Stadium or the Aquatic Centre of London in terms of scale and magnificence. However, Hong Kong does stress the promotion of local sports development, especially in the recent years, and the effort was proven by the redevelopment of the Hong Kong Sports Institute. The redevelopment project included the demolition of part of the structure of Sports Complex, construction of a new outdoor velodrome, and renovation work in the Sports Complex. The technical presentation was given and followed by a tour around the Institution, which has allowed young engineers to visualize the technical requirements and challenges in constructing sports facilities. Through improving, and enhancing the availability of the existing sports facilities, it is anticipated that active participation of sports from the general public will be achieved.

Insights

Based on lessons learnt from the study areas, events organised locally in Hong Kong and visits in London as mentioned in previous chapters, the focus of this chapter is to present the various insights the team have gained throughout this Delegation. In particular, the insights are divided into five areas below:

- Sustainability: Engineering Eco-living;
- Urban Renewal: Renewing Old Treasures;
- Public Engagement: Involving the Community;
- Transportation: Bringing People Together; and
- Legacy: Designing for Next-generation.

The following sections in this chapter will discuss each of these areas of insight in detail.

Sustainability: Engineering Eco-Living

The first insight to be discussed is on achieving sustainability through engineering eco-living. In recent years, there is a growing desire in many cities, including Hong Kong and London, to build a sustainable and green environment. Nevertheless, as different cities have different development constraints, their approaches taken in addressing the public desire may differ. Therefore, in this section, two examples from London, namely the experience of BedZED and the building of the Olympic Park, and two examples from Hong Kong, namely the overall Government green policy and the implementation of the West Kowloon Cultural Development (WKCD), are analysed.

London Example 1: BedZED

Nowadays, our living styles consume at least three plants' resources including energy, water and food to support. The delegates need to explore a new eco-living style. BedZED is the largest eco-village built in the UK, targeted to achieve and demonstrate to the world an example of "eco-living" (BioRegional, 2002). BedZED is located in the London Borough of Sutton. It is a high density residential development area with about 100 homes per hectare, even though as compared to residential area in Hong Kong, this should be considered as a low density development area. The site is designed and incorporated with green features (BioRegional, 2010).

BedZED is designed to allow residents to live comfortably without using any air-conditioning. The indoor temperature of each home is regulated only by simple passive solar design (BioRegional, 2003). The windows and most of the opaque walls of all homes are facing south, similar to the traditional Chinese wisdom, the occupant can enjoy more daylight. Also, it allows more solar radiation to be captured into the building. An air gap and a high-performance thermal insulation were integrated to reduce heat gain and heat loss in the cooling and heating season respectively. The building materials have a high thermal capacity to increase the time lag for heat transfer. And hence, the peak heating and cooling load are reduced. Special wind cowls provide passive ventilation with heat

recovery to maintain good indoor air quality without losing heat. Furthermore, daylighting and energy efficient appliances are used at homes to reduce electricity demand. Tap water, hot water and electricity meters are mounted visible at eye level in kitchens to increase residents' awareness of their consumption (BioRegional, 2003).

In addition, BedZED is powered by on-site renewable and efficient energy technologies. Energy needs are supplied by photovoltaic panels installed on building roofs and by an eco-friendly wood-fuelled Combined Heat and Power (CHP) unit (BioRegional, 2003).

Moreover, hot water is supplied through a district heating system, which is more efficient than conventional boilers installed locally in each building. BedZED also encourages the use of rain water, grey water and water saving through the installation of Green Water Treatment Plant, which uses living plants to derive nutrient in treated water (BioRegional, 2003).

Furthermore, several measures are introduced to reduce residents' carbon footprints through transportation. For instance, to reduce the need to travel, BedZED house was designed to allow working and living onsite. Supporting facilities such as social space and childcare centre were also provided on site to minimise travel using automobiles. BedZED designers also purposely reduced the available parking space and

made free charging points widely available throughout the area to encourage residents to use more eco-friendly electric cars instead of conventional petroleum-based automobiles. Also, a car club, ZEDcars is established in BedZED to allow residents to share vehicles (BioRegional, 2003). This scheme is considered as a more environmentally friendly alternative of car ownership to having residents buying vehicles for their own. Moreover, as railway, tram and bus stations are all within walking distance from the site, residents can easily put aside their cars and are still able to travel conveniently around by using public transportations (BioRegional, 2002).

In short, BedZED is a showcase of how a people can live in a community in an environmentally friendly manner without sacrificing the comfort brought from the use of modern design and technologies. It is believed that this approach could help to reduce the natural resources by two-third as stated in "One Plant Communities" (Desai, 2010).

London Example 2: 2012 Olympics

After analysing how London engineered eco-living in a small community, the second example to be discussed is how London organises its coming 2012 Olympics using sustainability as the main theme of the Games.

According to the Olympics Sustainability Plan published by the two organisations at the centre of delivering the Games, the London Organising Committee of the Olympic Games and Paralympic Games (LOCOG) and the Olympic Delivery Authority (ODA), which known collectively as London 2012, sustainability in the Games focuses on five areas, they are as follows (London 2012, 2009):

- Climate Change: minimising greenhouse gas emissions;
- Waste: minimising waste at every stage of the project;
- Biodiversity: minimising impact to wildlife;
- Inclusion: promoting access for all; and

- Healthy Living: inspiring people to develop active, healthy and sustainable lifestyles

In realising these definitions, engineers at Buro Happold (Buro) told the delegates upon visiting their London office that the ODA has developed a MEAN, LEAN, GREEN strategy in the design and build of the Olympic Park. In short, MEAN is to reduce demand for energy at the point of use, LEAN means low conversion and distribution losses, and GREEN means energy from renewable sources. More specifically, to achieve MEAN, engineers went back to the basics and applied passive designs in their building of the Olympic Park. These passive designs include orienting buildings to avoid the summer heat, maximising air flow and day lighting, and reducing overheat by use of shading. Although the approaches are relatively simple, it is estimated that by applying these passive designs, a 15% improvement on energy efficiency can be achieved (Young, 2011).

As for LEAN, the focus is on the use of a CHP system. In a nutshell, CHP captures heat generated as a by-product during power generation. The captured heat will be used for heating purposes. It is estimated that a 30% reduction in carbon dioxide can be achieved by using CHP system as compared to using conventional grid electricity supplies with separate individual gas boilers for heating (Young, 2011).

Finally, for the GREEN strategy, the Energy Centre is the key to its implementation. The Energy Centre is a building which generates hot water, heating, electricity and cooling to buildings in the Olympic Park. Combining all these energy generations under one roof is more efficient than having them as individual system (London 2012, 2008). Furthermore, the Energy Centre has boilers which use sustainable biomass fuel to generate heat. It is estimated a 20% emissions can be cut as a result (Young, 2011).

In all, by fully implementing the MEAN, LEAN, GREEN strategy, the ODA, according to Young, aspires for a 50% reduction in carbon dioxide emissions (Young, 2011).

Hong Kong Example 1: Government Green Policies and Incentives

After looking at two examples of how London engineer eco-living, this section of the chapter shifts to analyse examples locally in Hong Kong. From research done for this Delegation, it is learnt that the Government does want to make Hong Kong a green and sustainable city.

As an illustration, the Government has recently reviewed the policy of allowing private buildings to increase floor areas by including green and amenity features that can enhance the living environment. Incorporation of sustainable design elements for building separation or enhancement of building permeability, setback and greenery in new buildings, together with provision of environmental and energy consumption information in new buildings, are prerequisites for obtaining concessions. This will strike a proper balance between fulfilling environmental performance and comfort requirements of buildings on one hand, and minimising the impact on surrounding environment as far as possible on the other.

For another example, as buildings account for the vast majority of the total electricity consumption in Hong Kong, since 1998, the Electrical and Mechanical Services Department (EMSD) has implemented a Voluntary Energy Efficiency Registration Scheme for Buildings to promote the application of the Building Energy Codes. The codes cover lighting, air conditioning, electrical and lift & escalator installations. They stipulate the minimum energy performance standards of these four types of installation. The reason for choosing these four types of installation is because according to studies conducted by EMSD, they accounted for the majority of the total electricity consumption of a modern office building. Later in 2003, the performance-based building energy code was introduced to increase flexibility and encourage more innovative ideas in building design. In late 2010, following the international trend, the Government made this voluntary scheme mandatory, further enhancing the building energy efficiency (HKSAR Government).

Hong Kong Example 2: West Kowloon Cultural Development

Besides policies and incentives, to illustrate further the implementation of eco-living in Hong Kong, the delegates studied the WKCD.

The current conceptual design of the WKCD is called City Park. It is designed by Fosters + Partners (Foster + Partners, 2010). According to the presentation panels submitted by Fosters for the WKCD Stage 2 Public Engagement Exercise, the delegates are pleased to report that many of the sustainable elements learnt in London are included in this conceptual design. For example, passive MEAN methods such as orienting buildings to provide shades for pedestrians, varying building heights to enhance wind permeability and putting polluting traffic below ground are mentioned explicitly. Other LEAN and GREEN implementations such as the building of a new Energy/ Recycling Centre, the use of photovoltaic cells on building roofs and the use of wind turbines along the waterfront are also stated. In fact, according to the Report on the Analysis of Views for the Stage 2 Public Engagement Exercise for the WKCD, these green features as cited are one of the reasons for the public to select the City Park as the conceptual design for the WKCD, beating two other alternative conceptual designs offered in the same engagement exercise (WKCDA, 2011).

The next stage of the WKCD Stage 3 Public Engagement Exercise is scheduled to commence later in 2011. In this round of engagement exercise, the detail master plan will be made available to the public for consultation. The delegates believe engineers in Hong Kong have a role to play in providing the public with expert advice. For example, engineers can review the efficiency of the different green features proposed, e.g. photovoltaic cells on building roofs or wind turbines along the waterfront, and advise if they are actually technically, environmentally and economically worthwhile to implement. Moreover, as the delegates learnt in London, during the construction of the Olympic Park, to follow the sustainability theme, 97.7% of demolition waste were recycled or reused. Concrete used for the foundations of the Aquatics Centre, Handball Arena and Olympic Stadium contained 30% of recycled materials (London 2012, 2009). Similar construction details can actually contribute greatly in meeting the public desire of having a sustainable project for the WKCD. Unfortunately, these construction details may not be as visually appealing as compared to green features like photovoltaic cells or wind turbines. Indeed, these construction details may not even be drawn on the public engagement brochures at all. Thus, the public may not be aware of their significance. Therefore, the delegates believe engineers can bring these issues out in the next public engagement exercise so the public can make an informed decision.

To conclude, from the four examples above, it is evident that with ever increasing public awareness in going green, sustainability will be a key trend in engineering in the years to come. Therefore, providing eco-living to the community without asking the community to sacrifice the comfort modern technologies bring is a major challenge for engineers to tackle. BedZED can be seen as a pilot project for engineers in the UK in answering this challenge.

However, since different cities have different development constraints, what works in BedZED may not be able to be applicable to Hong Kong directly. For example, the use of wind cowls to provide natural ventilations, which works well in BedZED, further studies are required to explore for areas with mostly high rise buildings.

Nevertheless, there are still lessons the delegates learnt in the UK which can be applied locally in Hong Kong. One of them is the usage of passive architectural design, like the installation of solar gain and the application of high levels of insulation to achieve eco-living. The delegates notice that these passive designs are featured prominently in BedZED and Olympic Park in the UK. It is also mentioned in the design of the WKCD in Hong Kong. The delegates are pleased to see this adoption trend and believes these passive designs should be further promoted for use in more engineering projects, both locally and aboard. Moreover, if these designs are proven to be effective, the Hong Kong Government can consider providing further incentives policy-wise in order to encourage the building industry to quickly adopt them as a standard, and thus enhancing our eco-living environment overall.

Urban Renewal: Renewing Old Treasures

Besides sustainability, urban renewal is another insight the delegates have gained. From studies done for this Delegation, it is apparent that both London and Hong Kong are having the same need in renewing aging buildings and communities. Nevertheless, a key challenge that engineers face during the urban renewal process is how to secure the support from the public. Therefore, in this section, strategies that both cities have employed in winning public support are examined.

Furthermore, a common technical problem in urban renewal is to deal with pollutant contamination resulted from previous use of the land. Therefore, land remediation is another key challenge faced by engineers in urban renewal. To this end, in the later part of this section, examples from both Hong Kong and London as learnt through this Delegation in addressing this challenge are discussed.

Firstly, the challenge in securing the public support is examined.

London Example in Winning Public Support: Olympics as a Catalyst for Change

Back in the 1980s, the UK Government already started the plan to redevelop Docklands, the eastern part of London. The Government first established the London Docklands Development Corporation (LDDC) to oversee the redevelopment and designated the Docklands Area as an Enterprise Zone. As the team learnt from this Delegation, since the

establishment of the Enterprise Zone, the Docklands Area underwent redevelopment rapidly. It changed from being an old dock to an area with a mixture of residential, commercial and light industrial development. Furthermore, with the construction of the Docklands Light Railway (DLR), traveling between Docklands to the city centre became much more convenient. Given the initial success in renewing the old Docklands, the UK Government decided to phase out the redevelopment incentives and undesignated the area as an Enterprise Zone. The LDDC was also closed down in 1998 in order to release power back to the London Boroughs (Tsenkova, 2002).

The renewal of East London was given a boost again in 2005 when London won the bid to host the 2012 Olympic Games. It is because the Games will mostly be held in Stratford and London Borough of Newham, all located in East London. This area is regarded by many Londoners as "one of the capital's most diverse and economically deprived areas" (Stevens, 2008). Therefore, after the bid, the Government started to discuss plans to redevelop East London, together with companies from the private sector such as German electronics giant Siemens, Swedish furniture powerhouse IKEA and Australian retain leader the Westfield Group (Vandore, 2011). The London Government believed the involvement of the private sector can help with the redevelopment plan, both in terms of gaining public support through job creations as well as securing financing from the banks.

Also very importantly is that the winning of the bid sets out a fixed timeline for the Government, the community, the private companies and other stakeholders to work together efficiently so as to deliver the redevelopment plan in time for the Games. In fact, when the Delegation visited the London Development Agency (LDA), the team learnt that without the Olympics, it is nearly impossible for the London Government to deliver the redevelopment plan as efficiently as it is doing now. It is because the community now has a common goal to achieve. In other words, the Olympics can be viewed as a catalyst that speeds up the pace to redevelop and improve the living standard of East London. Furthermore, as urban renewal involves huge amount of resources, the Public-Private Partnership implementation mode the London Government is currently adopting allows resources from both the public and the private sectors to be consolidated efficiently in the delivering of the redevelopment plan.

To sum, the delegates learnt how urban renewal strategies have changed throughout the years, from the establishment of the LDDC and designation of Enterprise Zone, to using the Olympic as a catalyst for change and securing support from the public.

Hong Kong Example in Winning Public Support: People Oriented Approach

Unlike London, Hong Kong does not currently have a plan to host large-scale events like the Olympics that allow the Government to initiate a re-development plan. It is therefore necessary for Hong Kong to take another approach to secure public support in urban renewal.

Urban renewal by the Hong Kong Government started in 2001 with the establishment of the Urban Renewal Authority (URA) taking over all matters regarding urban renewal in Hong Kong. The main purpose for the URA is to use its 4R strategy (Redevelopment, Rehabilitation, Revitalisation and heritage pReservation) to re-develop communities in Hong Kong.

In 2008, faced with the challenge of a growing number of aging building stocks, the Government initiated a consultation to review the Urban Renewal Strategy (URS). Different from the strategy used by the UK Government, the new strategy published in February 2011 states that the new URS should adopt the "People First, District Based, and Public Participatory Approach". In order to "balance the interests and needs of all sectors of the community without sacrificing the lawful rights of any particular group", the URS formed a new advisory platform, District Urban Renewal Forum, to strengthen urban renewal planning at the district level. At the same time, the URA will focus more in the general implementation of the 4R (Development Bureau, 2011).

More specifically, the first stage in the URA's people-oriented approach in urban renewal is to carry out policy research in neighbouring cities such as Seoul, Tokyo and Singapore. Then, in the second stage, public engagement exercises such as road shows, public forums, partnering programmes with the private sector and district aspirations study are conducted to collect views from the public. The third stage will be the consensus building stage. All collected views will be considered and the goal of this stage is to develop an all-rounded way forward in renewing the urban area of concern (Development Bureau, 2010).

Overall, the newly released URS is more transparent and the public can get involved easier than before.

To conclude, engineers in London and Hong Kong are both facing the same challenge in urban renewal – winning public support. As discussed above, with different opportunities, the two cities took different approaches in tackling this challenge. For example, London used the Olympics as a catalyst and took a event-driven approach in executing its urban renewal plans. On the other hand, Hong Kong adopted a people-oriented approach.

In either case, the Government is taking a leading role in urban renewal and setting a clear goal so the community can co-operate and work together in achieving it. Very often the Government shall see itself as "public entrepreneur" (RICS UK). Furthermore, public consultation is, and will always be, an important tool in securing public support for urban renewal projects. Therefore, the delegates suggest the Government to put greater effort in establishing a transparent public engagement system. The newly released URS is an important step in the right direction. Ultimately, the outcome will be having an urban renewal plan that is well-balanced, with the concerns from all stakeholders taken care of.

In addition to securing public support, as mentioned in the beginning of this section, another technical problem in urban renewal is to deal with pollutant contamination resulted from previous use of the land. Penny Bay and Kai Tak in Hong Kong, as well as the East London area in the UK have both undergone such technical process to facilitate the urban renewal of the three places. The following paragraphs will discuss these examples in detail.

Hong Kong Land Remediation Example: Penny's Bay and Kai Tak

As mentioned in the "Identifying Areas of Study" chapter, Penny's Bay, where the Cheoy Lee Shipyard was located before decommissioned, has undergone works to remediate 87,000 m^3 of contaminated soil in support of the Hong Kong Disneyland Development, Table 1 has summarized the adopted remediation methods. The methods included: "stabilisation" – the immobilisation process of metal constituents by adding cement to the soil, "bio-piling" – the biodegradation process to disintegrate the total petroleum hydrocarbon (TPH) and semi volatile organic compounds (VOCs), "thermal desorption" – the separation process in which heat is applied indirectly to evaporate the contaminants from the soil to a gaseous phase for subsequent condensation, and "incineration".

Table 1

Contaminants and corresponding remediation adopted in Penny's Bay

Soil contaminated with	Location being treated	By remediation method of
Metals only	On-site	Stabilisation
TPH/VOCs	To Kau Wan, North Lantau	Bio-piling
Dioxins	To Kau Wan	Thermal Desorption
Dioxin residue	Tsing Yi Chemical Waste Treatment Centre	Incineration

(CEDD, HKSAR, 2011)

Similarly, land remediation has also been performed after the decommissioning of Kai Tak Airport, in support of the Kai Tak Development. The applied method has summarised in Table 2. Moreover, the Environmental Impact Assessment of "Kai Tak Airport North Apron Decommissioning" has also proposed and recommend to adopt "soil vapor extraction"/ bioventing for unsaturated soil, and "air sparging" for saturated soil/ groundwater (Maunsell Consultant Asia Ltd, 1998).

Table 2

Contaminants and corresponding remediation adopted in Kai Tak Development

Soil contaminated with	Location being treated	By remediation method of
Metals only	Northern part of the South Apron	Stabilisation
TPH/VOCs		Bio-piling
TPH and metals contaminated soil		Bio-piling, then Stabilisation

* Volatile Organic Compound (VOC)

(AECOM, 2007)

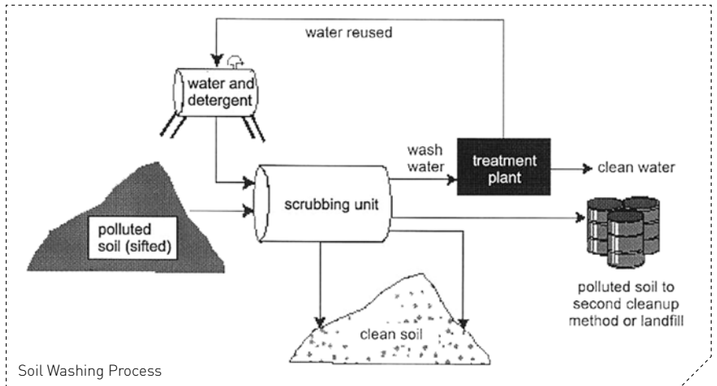
London Land Remediation Example: East London for 2012 Olympics

In contrast with the small-scale land remediation projects that were studied locally, a comparatively large scale land remediation project in East London was learnt during the Delegation.

East London was chosen to be the site for the 2012 Olympics. However, as shared by the seminar prepared by Joanne Kwan from CIRIA in London, due to the historical industrial development of the area, the land was severely contaminated by chemical, heavy metal and invasive plant (Kwan). Moreover, other than the normal contamination such as petro, oil, tar, arsenic, and lead, the challenge of dealing with Japanese Knotweed in East London was specially mentioned. Japanese Knotweed is a highly invasive plant that is hard to kill. It has contaminated four hectares of soil, which is equivalent to around ten football pitches.

Besides the ones that were learnt from the local studies, various remediation methods that were adopted on the contaminated land in East London were shared in the CIRIA seminar. In particular "soil washing" was elaborated in depth (Kwan, 2011).

While five soil washing plants were operated concurrently in East London, the pre-screened soil, which has removed the oversized biodegradable and metallic objects, is being differentiated into contaminated and uncontaminated soil. The contamination would then be separated off by disaggregation, sieving, and settling.



Soil Washing Process

By undergoing the soil washing method, not only contaminants, e.g. heavy metals, arsenic, and cyanides, are filtered, but the contamination volume is also reduced. Furthermore, material that are produced – sand, gravel, fine silts and clays, fine/coarse organic matters, ashes/ coke materials, can be refined to reuse as Engineering Class Fill.

Aside of the contaminated land, East London is also known as the poor area, where the population consists of multi-ethnic minorities. The seminar at CIRIA told the delegates that there are over 200 spoken languages in the area (Kwan, 2011). Moreover, the area is suffering from poor health, high crime and unemployment rates. The winning of the 2012 Olympics bid stimulated the goal of regenerating East London. The associated land remediation optimised land use, revitalised the area, and improved its corresponding standard of living.

Overall, land remediation forms an integral element in urban renewal, especially in areas with contamination. However, bearing the contamination source, pathway, and receptor in mind, one could have prevented the contamination in the first place and avoided expenses on land remediation all together. Meanwhile, if remediation is unavoidable in a urban renewal development, Hong Kong may consider adopting the soil washing method which has been successfully used in London.

Public Engagement: Involving the Community

The third insight the delegates have gained is the need to involve the community through public engagement.

In the past, the Government often conducted consultations prior to launching a development project. The targeted groups to be consulted were usually the legislative councillors, district councillors and related professional bodies. This kind of comment seeking activities usually involved limited number of parties. The persons giving the comments also tend to come from a relatively more educated and wealthy background with professional qualifications. Thus, comments received might not reflect what ordinary citizens have in mind.

In recent years, the idea of public engagement has gained growing attention. Public engagement is a process that brings people together to address issues of common importance, to solve shared problems, and to bring about positive social change (Public Agenda, 2011). Citizens and stakeholders are invited to get involved in deliberation and dialogue on public issues that they care about. This process aims to help leaders and decision makers to better understand the perspectives, opinions, and concerns of the citizens and stakeholders, enabling them to make decisions that are more receptive by the public.

In this section, the extent of public involvement in London and in Hong Kong will be analysed.

London Example: 2012 Olympics

Public participation in London can be seen from the preparation work of the 2012 Olympics. Since winning the bid in 2005, the LOCOG applied a variety of techniques to get the community involved. Information related to the Olympic development was delivered to local citizens through various channels (LOCOG, 2010). For example, public exhibition and media events are held to keep the public informed of the development proposals. Furthermore, to ensure that every citizen can receive the information, newsletters are directly mailed to nearby residents. Advertisements, posters and leaflets can also be found around the community. Moreover, a consultation hot-line and a free-posting address are set up so citizens can get in touch with the authority easily to request for information or leave comments on proposals. In addition, in a more innovative attempt, the LOCOG uses the popular social network Twitter to send out tweets related to the Olympic development as a more casual and friendly approach to get in touch with the citizens, especially the younger generation.

Hong Kong Example: Redevelopment of Kwun Tong Town Centre and Upper Ngau Tau Kok Estate

Looking back at Hong Kong, the public is also increasingly keen to be involved in the Government's policy making and infrastructure development process.

Taking the Kwun Tong Town Centre Redevelopment Project by the URA as an example, a resources centre located in Kwun Tong Town Centre is opened with an aim to better engage the community. In this centre, the public can acquire all the redevelopment details and other relevant materials, some portrayed even as 3D models (URA, 2007). Civil education seminars and local tours highlighting the current district considerations and the redevelopment scopes are organised for schools and other interested parties. Outside of the centre, newsletters are published bi-monthly and road shows are held at different locations within Kwun Tong and in nearby districts to keep citizens informed of the renewal process.

Other than keeping the public informed, the URA also actively takes initiatives to gather views from stakeholders and members of the public (URA, 2011). For example, the URA often visits homes of local residents and conducts surveys to gauge their needs. Moreover, meetings

with local community groups and district councillors are held regularly for exchange of views. Besides, local residents are invited to attend and express their views in planning briefings and public forums. Overall, these public engagement initiatives show that the URA does not just inform citizens of the progress of the Kwun Tong redevelopment, it is also actively taking views and comments from the community.

Another fruitful example of public engagement in Hong Kong is the Redevelopment Project of the Upper Ngau Tau Kok Estate done by the Hong Kong Housing Authority (HKHA). Most of the tenants of the estate have lived at the estate for decades. Most of them are seniors and they have a deep sense of belonging. Therefore, to learn about their concerns and explain the redevelopment details to them, numerous meetings and briefing with the tenants were held by the HKHA. Also, community workshops which allowed the tenants to model out their future dream home were organised. Together, these activities provided opportunities for the tenants to get involved in the planning and design of the estate redevelopment. The tenants had the chance to express their needs, such as special facilities for the elderly and disabled, so authorities can take them into account when redeveloping the estate. Furthermore, to address tenants' emotional attachment to the estate, plans are in place to preserve the culture and memory of the old estate after the site is redeveloped (Yim, 2011). As a result of all these public engagement effort, the HKHA successfully gained the support of the tenant and smoothly started the redevelopment of estate in 2010.

To conclude, public engagement helps to build common understanding, manage differences, and establish a direction in moving ahead the development project in hand. It aims to avoid unnecessary resistance from the public, which can cause delays. Moreover, ideas collected during the engagement process help to improve the design of the project by satisfying the needs of the people. Better communication and stronger sense of trust are also fostered between citizens and decision makers. Therefore, the delegates suggest that public engagement in Hong Kong should be continued and be further enhanced as appropriate. One improvement example is that different engagement methods can be employed to better reach citizens of different age groups, such as learning from London on how to use alternative channels such as Twitter to communicate with the younger generation on the London Olympic development. In all, it is observed in this Delegation that more public participation in development projects leads residents to develop a stronger sense of belonging in their community, thus resulting in a more harmonious living environment.

The fourth insight the delegates gained is how engineers can bring people together through better design in transportation, in particular railway transportation. As observed in this Delegation, the challenge for many of the densely populated cities around the world today, including London and Hong Kong, is to provide a safe, efficient and reliable transport system that can meet economic, social and recreational transportation needs of the community in an environmentally acceptable manner, thus enhancing the quality of life of all the citizens.

In order to overcome this challenge, the Mayor's Transport Strategy (MTS) sets out the transport vision for London to cope with the predicted growth of 1.25 million more people and 0.75 million more jobs by 2031.

To this end, the key proposal under the MTS calls for further railway development in London to support local, regional and national commutes. Similarly in Hong Kong, the current transport and planning policy stresses "railways [as] forming the backbone of Hong Kong's transport system". The enhancement in local, regional and national connectivity through railway development in London and Hong Kong will be discussed in the following paragraphs.

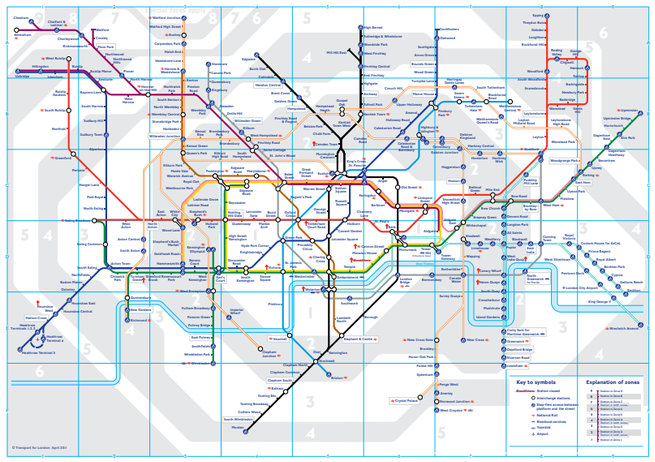
Railway Development in London

In London, the mode of transportation varies depending on regions: Central London, Inner London and Outer London.

Zoning	Major Mode of Transportation
Central Activity Zone	Public Transportation 90%
Inner London	Public Transportation 90% and Walking 46%
Outer London	Public Transportation 31% and Walking 52%

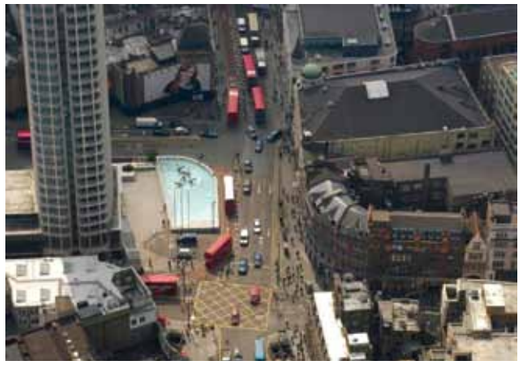
Travel within Central London relies heavily on public transportation, accounting for 90% of all the journeys. Of all forms of public transportation, the London Underground (also known as the Tube or The Underground) plays a major role. The Tube serves a large part of Greater London and some parts of Buckinghamshire, Essex and Hertfordshire in England. It is the oldest underground railway in the world, with the first section opened in 1863. The Underground serves 270 stations and it has 402 km of track, making it the second longest metro system in the world after the Shanghai Metro. It also has one of the highest numbers of stations. In 2007, more than one billion passenger journeys were recorded, making it the third busiest metro system in Europe after Paris and Moscow.

Being one of the busiest metros in the world, constant upgrading works are required in order to meet the increasing demand. Recent developments of the Jubilee Line and the DLR have greatly improved the connectivity of Newham to Central London. The Channel Tunnel Rail Link and the International Passenger Station in Stratford are creating a transport hub in East London, further promoting urban growth. While providing brand new services like these examples seem to be an easy way to cope with increasing demand, engineers do not always have such luxury, especially in a well-developed and congested area. The Tottenham Court Road Station improvement is such a project.



London Tube Map

Shared in the ICE GSNet exchange session by representatives from the London Underground, the delegates learnt that the Tottenham Court Road Station improvement project involves not only the rebuilding of the existing Tube station, but also the construction of a new one for Cross Rail, the latest railway connection running through Central London currently in construction. During the presentation, selected construction details, such as the piling construction for the escalator



Congested Tottenham Court Road

New Tottenham Court Road Design

box, the segmental and sprayed concrete lining for the lift shaft construction and the challenge of installing diaphragm wall under bentonite were discussed (Jonathan Cooper and Josh Southern, 2011). Aside from presenting the civil engineering works, the effect of the project to the urban realm was also presented. In particular, there are concerns that with the increase in pedestrian traffic brought by the new station, congestion will result, thus limiting pedestrian movement. To resolve this issue, engineers from London Underground thought of creative solutions and proposed a new urban realm. This proposed realm not only reduces street clutters, it also creates more public space

have also been made to reorganise the sub-surface lines and split the Northern line and extend the Charing Cross branch.

Crossrail is based around an entirely new east-west tunnel with a central section from Paddington to Liverpool Street station. The tunnelled section of the line will be about 22 km in length. Tunnel construction is expected to be difficult and expensive because of London's geology, and the extensive tunnelling that already existed under central London. The twin circular tunnels will have an internal diameter of 6m, compared with the 3.8m diameter of existing deep Tube lines.

There are lots of new stations

and extensions for Crossrail. A new Crossrail-HS2 interchange will be built at Old Oak Common, between Paddington and Acton Main Line stations. Moreover, there is a new station planning to be at Silvertown, on the Abbey Wood branch, serving the London City Airport, which is currently served by the London City Airport DLR station only. However, this will not be built as part of the initial construction. There are also lots of extensions in planning, like to Reading, Gravesend and Milton Keynes and Heathrow Express. When all these new rail lines are built, the connectivity within London would be greatly enhanced.

In addition to inner-city travel, being an international city, an efficient and reliable international, national and inter-regional links are essential for the continued success of the London and the UK economy. Therefore, in the presentation delivered by Ove Arup as the delegates visited their office in London, the development of the cross border high speed railways of High Speed 1 and 2 were discussed. High Speed 1 (HS1) is the only high speed route

in Britain with operating speeds from 230 km/h to 300 km/h. It has service running from London and, through the Channel Tunnel, to either Paris or Brussels. To further enhance international connectivity, High Speed 2 (HS2), championed by the High Speed Two Limited (a company established by the Government), is proposed to be built. HS2 is a high-speed railway extended from HS1. It is planning to connect London with the Midlands, with the North of England and potentially to Scotland. If the plan is approved, a railway with operation speed of up to 400 km/h will be in operation by 2025. This could enhance the connectivity nationally and internationally as well as fostering urban development in areas along the railway alignment.

Railway Development in Hong Kong

As for Hong Kong, the recent Railway Development Strategy announced aims to meet the increasing transport needs due to population growth, continued developments and strengthening links with the Mainland in a sustainable manner. Upon the completion of the various railway projects under the Railway Development Strategy, Hong Kong's railway network will expand to about 300 km. The railway share in the public transport system will be boosted from about 35% in 2000 to about 45% after finished.

At present, the railway network in Hong Kong is operated by one single company called the MTR Corporation Limited. The system is over 200 km in length with 10 different lines and 80 stations serving most of the urbanised areas and new town centres in Hong Kong.

In Hong Kong, railway development is not solely developed to meet the demand of transportation. It is also done to enhance the connectivity of newly developed town centres and facilitate the revitalisation of old districts. For example, the construction of the Tseung Kwan O Line leaded to the development of the Tseung Kwan O New Town. On the other hand, the South Island Line currently in construction will help to revitalise the old industrial district in Hong Kong Island into a new tourist spot in Hong Kong.

Furthermore, in order to maintain a Hong Kong's growth, it is essential to enhance the city's connectivity with adjacent regions. Similar to London, a high speed railway called the Express Rail Link (XRL) is currently under construction. The Hong Kong section of the XRL will run in the form an underground tunnel from the West Kowloon Terminus in the city centre to the border town of Huanggang for subsequent connection with the Mainland high speed railway network. With operation speeds of over 240 km/h, it is anticipated that the travelling time by train from Hong Kong to Beijing could be reduced from the current 23 hours to just 8 hours.

Hong Kong MTR System

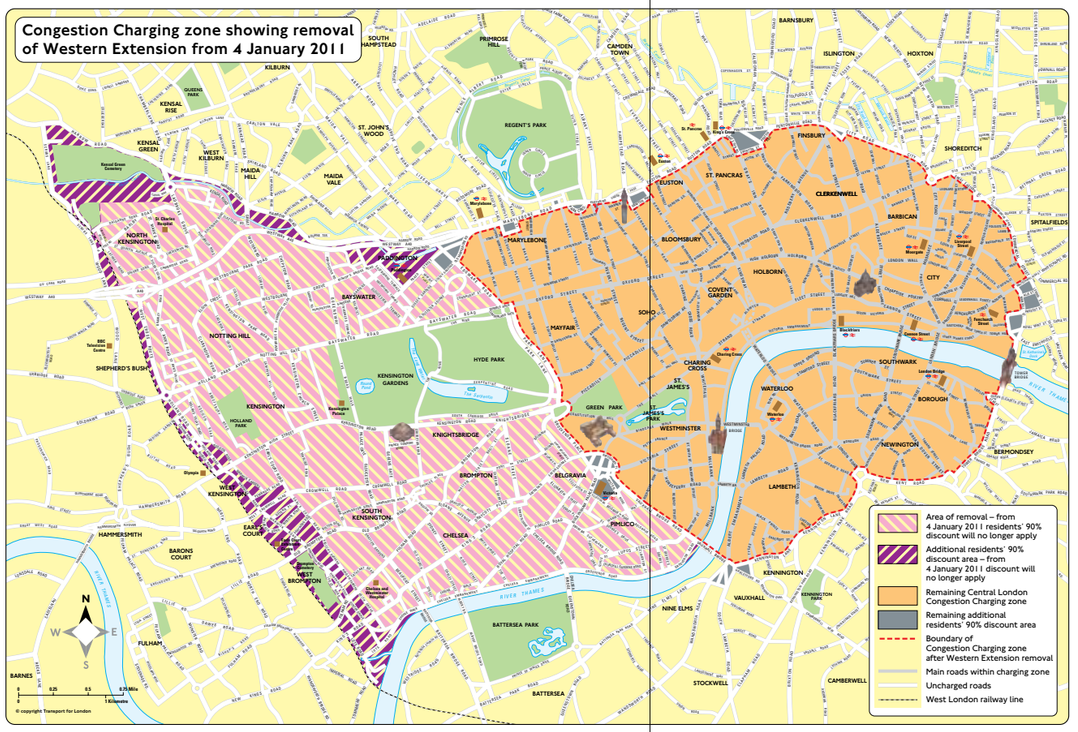
Other Solutions to Enhance Transport Infrastructure

Besides adopting railway as the backbone for transport system, Hong Kong Government also put a lot of effort to enhance the connectivity of the city centre by enhancing the road network. One such example is the Central-Wan Chai Bypass (CWB) project. Although part of the project will be a tunnel constructed in reclaimed land, the bypass still has to go through existing structures such as the Hong Kong Convention and Exhibition Centre, Causeway Bay Typhoon Shelter and utilities along the coast. Engineers have to overcome these obstacles through careful planning and liaison with stakeholders.

Described in the Government webpage as "the missing link" and "strategic road" that runs along the north shore of the Hong Kong Island, upon its completion in 2017, the bypass is expected to "alleviate the traffic congestion along the existing Gloucester Road - Harcourt Road - Connaught Road Central corridor". It will improve the road connectivity to the coastal area in North Point and create additional open areas for the public. As part of the local research for this Delegation, the team have organised a visit to the construction site in North Point where the reclamation for the CWB is currently underway. The site involves building a new seawall along the North Point shoreline and constructing 3.3 hectares of permanent reclamation with associated drainage works.

Different from Hong Kong, the London authority adopted the Congestion Charging Scheme to control the number of vehicles entering the city centre. In particular, a congestion charging zone is set up in central London with a Congestion Charge of £10 a day for driving a vehicle within the Congestion Charging zone from 7:00am to 6:00pm, Monday to Friday, excluding public holidays. The Congestion Charging Auto Pay is an automated payment system that records the number of days a vehicle travels into the charging zone each month and bills the account holder accordingly.

To conclude, from the building of new rail lines, to the upgrading of existing stations, from the construction of high speed railways to the enhancement of road networks, engineers in Hong Kong and in London are constantly battling between the desire to provide an efficient transport system to the community and the dealing of the construction constraints existing in an already crowded and developed city. The different strategies adopted in the examples mentioned in this section inspire the delegates to think that there is always room for engineers to contribute in bringing people together more efficiently by creating better transport systems, thus enhancing the living standard of the community overall.



Congestion Charging Zone in London

Legacy: Designing for Next-generation

The final insight the delegates have gained is on the importance for engineers to design for legacy.

London Example: 2012 Olympics

Legacy is a key theme for the 2012 Olympics. The idea of using the Olympic Games as a catalyst to revitalise the area around the Olympic Park to provide long term benefits to nearby communities is one of the contributors for London to the winning of the Olympic bid. In this connection, a non-profit company called the Olympic Park Legacy Company is setup by the Government to oversee the long-term planning, development, management and maintenance of the facilities in the Park after the Games.

According to the plan, after the Games, the Olympic Park will be transformed into one of the largest urban parks in Europe. The new park will be connected to the tidal Thames Estuary to the south and the Hertfordshire countryside to the north. Furthermore, the canals and waterways of the River Lea will be cleaned and widened, and the natural floodplains of the area will be restored to provide a new wetland habitat. Moreover, the park will be planted with native species, including oak, ash, willow, birch, hazel, holly, blackthorn and hawthorn, in order to provide a home for wildlife in the middle of the city (LOCOG, 2011).

In addition, in the seminar given by engineers from Buro Happold, the delegates learnt about how engineers are keeping legacy in mind by designing and constructing world-class sporting facilities, such as the Olympic Stadium and the Aquatic Centre, to be transformable easily after the Games for recreational use by local communities (Young, 2011).

By simply removing the temporary lightweight steel and concrete upper tier, the capacity of Olympic Stadium can be reduced from 80,000 during the Games to 25,000 after the Games while that of Aquatic Centre can be reduced from 17,500 to 2,500. This arrangement allows a more efficient use of the sporting facilities owing to the lower seating demand after the Games.

Furthermore, during the Olympic Park Bus Tour, the delegates passed by the Olympic Village, the village where athletes and Games officials will stay during the Games. As mentioned by the tour guide, the village will be converted into homes for the locals after the Games. Also, riverside shops, restaurants and cafes will be setup to provide new amenities for the local community.

Besides, as covered in another seminar given by engineers from Ove Arup (Samaras, 2011), the delegates noted that a range of transport improvements serving the Olympic Park are being constructed. They include extending the DLR, increasing the capacity of the Jubilee Line and upgrading the Stratford Regional Station. All these improvements will not only allow London to cope with the expected surge in transportation needs during the Games, but will also benefit the community in the long term by providing citizens with better connectivity. Moreover, economically speaking, thousands of new jobs will be created for the locals to cope with the implementation and future operation and maintenance needs resulting from these improvement projects in the Park alone.

Hong Kong Example: Kai Tak Development

After learning how engineers have planned the 2012 Olympics with legacy in mind, the delegates considers that Hong Kong engineers in many cases can make reference to what their UK counterparts have done for the Olympic Park as they are preparing to work on the KTD

project in the coming years.

When the airport at Kai Tak relocated to Chek Lap Kok in 1998, the site vacated provided a rare opportunity for a major development in the city area. Compared with the Olympic Park, the KTD site is of a larger area, about 30% larger than the Olympic Park. The finalised scheme of KTD will be a mix of community, housing, business, tourism and infrastructural developments (CEDD, 2011).

Although not mentioned specifically, the delegates find that the Kai Tak Office, the Government body charged to lead and oversee the coordination and implementation of the KTD, shares many of the same considerations in terms of legacy the Olympic Park planners have gone through before. For example, these considerations include the following areas:

- implementation of mega interfacing projects;
- enhancement of green features; and
- integration with older parts of the district.

In more specific examples, for interfacing projects, when Hong Kong engineers are building the Trunk Road T2 and the Shatin-Central-Link in a few years times for the KTD, the transport improvement works done in London for the Olympic Park, such as the extension to the DLR and the upgrade of existing railway stations, should provide a good reference example for Hong Kong engineers.

As for the enhancement of green features, the transformation of the Olympic Park into one of the largest urban parks in Europe can be a model for the Metro Park planned to be built within the KTD. Some design issues UK engineers have tackled, such as land remediation, cleansing and widening of waterways, providing a new wetland habitat for wildlife and planting with native species can served as good references for engineers in Hong Kong as well.

In terms of integration with older parts of the district, a key focus for the Olympic Park is that large-scale sporting facilities to be built for the Games must be transformable easily for local use after the Games. Although there is no large-scale sporting facility planned for the KTD, the delegates believe this mentality of planning, for the long term, is still crucial for the long term success of the KTD. For example, large-scale infrastructure such as a Cruise Terminal, a District Cooling System and a multi-purpose stadium complex are planning to be built in KTD. Ensuring that these infrastructures can integrate with other parts of the district and attain long term usage by the residents are key if KTD is to be successful.

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Overseas Exchange Activities

20 March

Walking tour organised by the HKIE UK Chapter

Upon the arrival of the Delegation, Ir Thomas LAI, the Chairman of the HKIE UK Chapter, gave us a walking tour in London's city centre. The tour started from the St Paul's Cathedral and ended at the Towers of London. It covered many famous landmarks, including the Millennium Bridge, Tate Modern, Shakespeare's Globe, River Thames and Tower Bridge. Thomas showed us the historical and modern sides of London, and explained to us the engineering and architectural designs along the way. He also shared his observations over the past years as he had witnessed the developments in London, particularly along the River Thames.

21 March

HKIE UK Chapter dinner gathering

The delegates had a dinner gathering with the HKIE UK Chapter in the evening of 21 March. Topics ranged from local UK news to Hong Kong's future developments and world issues. Although the recession and budget cut would be the major challenges to most of the engineers in the UK in the coming years, we believe as professionals they would overcome the crisis by working out the most suitable solutions, despite the ups and downs of the economic cycle.

22 March

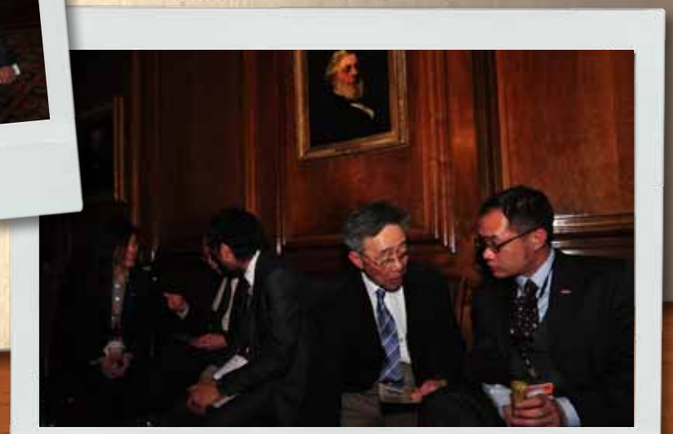
HKIE President's Reception

The HKIE arranged a President's Reception at the headquarters of the Institution of Civil Engineers (ICE) in the evening of 22 March. It was our great pleasure to join this reception as part of our Delegation.

The reception commenced with a welcome speech by Ir Thomas LAI, the Chairman of the HKIE UK Chapter, who presented various fruitful activities arranged by the UK Chapter and their interactions with the HKIE. Afterwards, Ir Prof Reuben CHU, the President of the HKIE, delivered his speech on the recent developments of the HKIE, including the celebration of the 35th Anniversary of the HKIE, special publication of the Hall of Fame, establishments of the Engineering Forum and the HKIE President's Protégé Scheme.

After the speeches, our delegates had the opportunity to meet with the UK Chapter members and practising engineers in the UK. It was heartening to find that lots of members of the UK Chapter were interested in the development and status of engineers in Hong Kong. We also met a member who studied at the Hong Kong Technical College, currently the Hong Kong Polytechnic University (PolyU), in the 60's. He shared on how he furthered his studies in the UK and the practice of Hong Kong and the UK engineers in the 60's and 70's.

This reception not only enabled our delegates to gain a better understanding of the developments of the HKIE and its UK Chapter, but it also provided an excellent networking opportunity among young engineers both in the UK and Hong Kong.



23 March

ICE GSNet Exchange Session and Dinner

An exchange session was conducted with the ICE Graduate and Student Network (ICE GSNet) on 23 March. The focuses of this exchange were on the introduction of the ICE GSNet and infrastructure developments in London, particularly the railway development.

Ms Jennifer STABLES, the Chairman of the ICE GSNet, introduced the mission, vision of the ICE GSNet and their activities. Similar to the YMC, the major mission of the ICE GSNet is to nurture young engineers to become future leaders through various activities. Meanwhile, the ICE GSNet also provides preparation workshops to the students and graduates on the professional review, and encourages them to join social and networking events. The major difference between the two young committees is that only graduates and students could join the ICE GSNet, while engineers below 35 could join the YMC. In exchange, we gave a presentation on the YMC as well as the purposes of this Delegation.

After that, a series of presentations was arranged to appreciate the railway developments in London and Hong Kong. Ms Jennifer ROBERTS, the honorary secretary of the ICE GSNet, first briefed us the background of the Crossrail, a new east-west tunnel through central London. Then she guided us through the development of Crossrail from planning to construction stage. Mr Jonathan COPPER and Mr Josh SOUTHERN of London Underground then presented the upgrading works of the existing Tottenham Court Road Station to cope with the Crossrail construction.

The delegates in return shared on the railway development in Hong Kong, in particular how it had lead to the new town development and rejuvenation of the old towns, as well as its future development in Hong Kong.

After the exchange session, we had a dinner gathering with over ten young engineers from the ICE GSNet. It enabled us to share our views on the young engineers' development and understand the culture differences as well as the constraints and difficulties ahead in a relax atmosphere. We learnt that the ICE did not provide Scheme A training as the HKIE did. Furthermore, most of the companies in the UK did not provide structural training scheme. As such, it would normally take more than six years upon graduation for the young civil engineers in the UK to obtain their chartership.

This dinner gathering provided us with a great opportunity to become more aware of the importance of respecting diversities and developing lasting cross-cultural friendships. In view of today's globalisation, these attributes will be important in the successful completion of projects.

24 March

Exchange gathering with the Department of EEE of Imperial College London

An exchange gathering with the Department of Electrical and Electronic Engineering (EEE) of Imperial College London took place on 24 March morning. Imperial College London is a public research university located in London, UK specialised in business, engineering, medicine and science.

The delegates visited the Department of EEE, Imperial College in South Kensingtonmain campus, London. The Head of the Department, Prof Peter CHEUNG, introduced to us the main objectives of the department, which was conducting internationally competitive researches, as well as delivering high quality teaching to the students. Peter also briefed us on their different research groups' interests and current developments. After that, he showed us a video about the Equinox project, which was initiated by the students who were keen to bring cost-effective renewable energy to the developing counties such as Rwanda.

Following the introduction, Peter guided us to the library and the student laboratories. The ingenuity of the student projects and coursework, especially the electronic beer-bottle music organ impressed the delegates greatly.

24 March

Exchange gathering with IET

An exchange gathering was conducted on 24 March 2011 afternoon at the Institution of Engineering and Technology (IET) headquarters at Savoy Place. IET is an organisation that provides a global knowledge network to facilitate the exchange of ideas and promote the positive role of science, engineering and technology in the world.

Prior to the sharing session, senior IET officers welcomed the delegates by giving us a tour of the IET premises. They guided us to the lecture theater with first-class conferencing equipment and the library where Michael FARADAY's research manuscripts were stored.

In the subsequent networking session, IET presented their latest developments; subsequently our Delegation Manager presented the growth of the YMC, and the objective of this Delegation. The recruitment of members has always been the area of concern in most of the institutions. We exchanged views on ways of recruiting and retaining members (in particular the female members). In addition, we also shared the professional development programmes that were offered to the members.

25 March

Social gathering with IMechE

Thanks to the coordination of Mr. James HEATON, the Vice Chairman of the Institution of Mechanical Engineers (IMechE) Young Members Board, the delegates had a social gathering on 25 March 2011 evening with several young members from the Group.

IMechE is one of the fast growing professional institutions in the UK. With 110 years of history, the IMechE headquarters marked one of the heritage buildings in the centre of London.

The event was hosted by IMechE young members Mr Felix SCHUBERT and Mr Simon COWLING. Not only did it provide a great opportunity for the IMechE members to escape from the stressful work, it also provided us with a chance to relax from the hectic schedule, and allowed our delegates to experience a different cultural social night. We all had an enjoyable time with the IMechE young members. We shared our views on the institutions and our work experiences. Despite the traditional professional image of the UK engineers, IMechE presented to us a young and energetic social exchange.

25 March

Technical meeting on "Engineering Hong Kong"

On 25 March 2011, the delegates were invited to attend a seminar jointly organised by the HKIE UK Chapter and The Institution of Structural Engineers (IStructE) – North Thames Branch at the headquarters of IStructE. Ir Prof Reuben CHU, the President of the HKIE, was the guest speaker of this seminar. He introduced the development of the HKIE and some engineering miracles in Hong Kong, such as the Tsing Ma Bridge, the Hong Kong International Airport, the Guangzhou-Shenzhen-Hong Kong Express Rial Link (XRL), and the New Cruise Terminal. Ir Prof CHU also pointed out some major challenges that Hong Kong engineers were facing, including environmental protection, climate change, improvement of the building environment and integration with the Mainland China.

Many participants of this seminar were interested in the job opportunities in Hong Kong. The President explained that experienced engineers from different disciplines were in demand as there are numerous projects undergoing in Hong Kong, Mainland China and other parts of Asia. He also invited the UK engineers to consider working in Hong Kong.

After the seminar, some undergraduates hoped to acquire more information about the differences in the training schemes and recognitions of academic qualification between the UK and Hong Kong. The HKIE Council members, staff and delegates addressed their concern, and explained in details about accessing relevant materials on the HKIE webpage. The delegates also shared their work experiences with these students, and let them gain a better understanding of the engineering industry in Hong Kong.

Conclusion


Getting Ready for
2012
City of Westminster
LONDON WEST END
like nowhere else
westendlondon.com
Transport for London
MAYOR OF LONDON
Site safety starts here

London is undergoing major redevelopment works in light of the Olympic Games in 2012. As a start, the Olympic Park and most of the venues for the Games are located in the Docklands area in East London, considered as one of the most underdeveloped areas in the city. Therefore, a goal for the London authorities in organising the Games is not only to deliver a sporting event in a sustainable manner, but also to use the Games to transform the Docklands area into a 21st century urban environment that can reflect the diversity and vibrancy of the neighbourhood, thus leaving a legacy in the community. Given this background, the YMC organised this Delegation to study how engineers in the UK use major development projects, in this case the Olympic Games, to create long term benefits to the public.

The preparation of this Delegation dates back to August 2010. 15 delegates were selected to organise this seven-day Delegation. The delegates are divided into three study groups, namely the Olympics and Beyond Group, the Town Planning Group and the Infrastructure Group. Members of each group focus on studying topics in the respective domains of each group and, where applicable, provide recommendations to comparable cases in Hong Kong.

Overall, the delegates have identified five major areas of insights, they are Engineering Eco-living, Renewing Old Treasures, Involving the Community, Bringing People Together, and Designing for Next-generation.

Engineering Eco-living relies heavily on the implementation of sustainable strategies. The delegates visited an eco-village called BedZED, in which they learnt of the application of energy-efficient devices and usage of passive solar designs aimed at reducing heating and cooling loads of the village houses. These applications successfully address growing social, economic and environmental concerns among the general public. They also serve as an example in realising the concept of "One Planet Communities". Besides BedZED, the delegates learnt that engineers in the UK took numerous measures to reduce carbon footprint as they built the Olympic venues. Their approach is to use the MEAN, LEAN and GREEN strategy. In short, this strategy covers initiatives to control demands, use biomass as fuel and optimise heating and cooling supplies which, when combined, can cut down carbon dioxide emission by about 50%.

As for Renewing Old Treasures, the delegates believe that old districts are treasures of our citizens and can help to link people together. Through visiting different professionals and government organisations, the delegates learnt that authorities in London are taking the opportunity of hosting the Olympics to revitalise the Docklands area, an area that is considered as one of the most underdeveloped in London. The key learning is on how the authorities is using the Olympics as a catalyst for changing and securing supports from the public. Furthermore, during the revitalisation process, engineers in the UK faced many technical challenges, including the issue of land contaminations. As learnt in the case of building the Olympic Park, soil washing can be a successful method to remediate the contaminated land.

Next, the delegates note that nowadays, Involving the Community in different engineering projects is considered an essential part of the projects. By engaging the public, most of the concerns from the public are addressed and hence a common understanding is built. This reduces public resistance and establishes a shared direction as the project moves forward to implementation. The delegates studied engagement works done by LOCOG, these include public exhibitions, media events, advertisements, posters and leaflets delivered towards the community. The delegates also noted that LOCOG uses some of the latest technologies, such as social networks like Twitter, to exchange with the public.

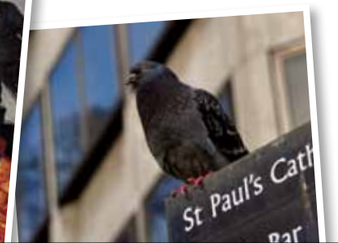
A good transportation system design brings people closer together. The delegates visited selected consultants and professional institutions in which they learnt about the challenges engineers in the UK faced as they work on upgrading existing railway stations and building new railway extension lines. Examples discussed include the upgrading of the Tottenham Court Road Station and the construction of the new Crossrail line. Though challenges, the delegates share the same believe as their UK counterparts that when these projects are completed, the connectivity within the city of London will be greatly enhanced, thus realising the noble goal of engineers in Bringing People closer Together.

The last insight is Legacy. The usage of venues and infrastructures after the Games has always been a major concern for Olympic host cities. For London, one of the themes for the 2012 Olympics is to use the month-long sporting event to bring long-term benefits to nearby communities. Therefore, major venues within the Olympic Park are designed to be transformable easily after the Games to suit local sporting and recreational usage needs. Other facilities such as the Olympic Village can also be renovated and sold easily as standard apartments after the Games. In all, the goal for the engineers is to design the venues and facilities for legacy, and have them adapted for use during the Olympics, rather than the other way around.

It is worth noting in this chapter that in addition to the technical visits in London, the delegates also paid courtesy visits to overseas institutions such as Imperial Collage, ICE, IET, IMechE and HKIE UK Chapter. Through these courtesy visits, the delegates gained a better understanding of the working environment of UK engineers.

Locally in Hong Kong, apart from preparing this Delegation Report and a debriefing session in June 2011, from December 2010 to April 2011, the delegates organised ten local visits and seminars on topics related to the theme of this Delegation for other young engineers of the Institution. The YMC believes that this approach can maximise the learning benefits of the Delegation as a whole.

This Delegation has addressed some of the pressing challenges faced by engineers today and strengthened connections of the YMC with other engineering institutions in the UK. However, this Delegation is just a start. YMC will continue to contribute to sustain the excellence in the engineering profession by organising more events for young members of this Institution in the coming future.



Annex

Ir Prof Reuben P K CHU, JP
President, HKIE

Ir Prof CHU has served in the Council and a number of leading positions in various boards and committees, division committee and discipline advisory panel and has made significant contributions to the development of the Institution. He is a registered professional engineer in civil,fire, geotechnical and structural disciplines, a registered structural engineer and a registered geotechnical engineer.

Currently, Ir Prof CHU is the managing director - structural, infrastructure and environmental of Meinhardt Consulting Engineers. He has over 30 years experience in consulting engineering and has delivered services to private sectors, government departments, MTRC and London Underground in Hong Kong, Macau, Mainland and the UK.

Over the years, Ir Prof CHU has established strong connections in the community. Ir Prof CHU has also served on numerous government bodies in Hong Kong. He is currently an Adjunct Professor of PolyU and has served on a number of Advisory Committees/Boards of local universities.

With his remarkable engineering achievements and service to the community, Ir Prof CHU was appointed a Justice of the Peace by the HKSAR Government in 2008.

Ir Dr Andrew K C CHAN, JP
Immediate Past President, HKIE

Ir Dr CHAN is the deputy chairman of the global Arup Group, a multi-disciplinary consulting practice. He is a civil and geotechnical engineer and has been involved in and responsible for many major building and infrastructure projects in the region. In recent years, he and his Arup colleagues have been active in research and application of sustainability concepts for planning and for the design of buildings and infrastructure.

Over the years, Ir Dr CHAN has served on numerous government advisory bodies in Hong Kong. Currently, he is the founding Chairman of the Hong Kong Green Building Council, and Vice President of the Hong Kong Academy of Engineering Science. He is a Justice of the Peace appointed by the HKSAR Government.

Ir Dr CHAN has been an advisor and Adjunct Professor to the Department of Civil Engineering of HKU and HKUST respectively. He has lectured widely at universities and conferences in Hong Kong and elsewhere; and has published many papers on projects and practices of planning, design and construction. In recent years, he has devoted much efforts in engineering education and the nurturing of young engineers.

Ir Dr F C CHAN
Senior Vice President, HKIE

Ir Dr CHAN received his education in Hong Kong and the UK. He was a graduate with first class Honours from the HKU in Electrical Engineering. He carried out research in power system protection and obtained his Doctor of Philosophy from Imperial College, University of London (currently Imperial College London).

Ir Dr CHAN has extensive experiences in power systems specializing in power systems protection, distribution automation, substation design and construction, lighting applications and energy services. He gave lectures and published over 50 papers to share his experience. He is active in various learnt society activities in Hong Kong. He is currently the Senior Vice President of the HKIE. His current focus includes the promotion of engineer profession and the development of young engineers as well as the engineering and technology education in secondary schools in Hong Kong.

Ir K K CHOY
Vice President, HKIE

Ir CHOY was graduated in 1975 at the Hong Kong Polytechnic with an Associateship in Structural Engineering.

After graduation, Ir CHOY worked for two years as a Site Engineer for Hip Hing Construction Co. Ltd. at the construction site of the New World Centre in Tsim Sha Tsui, Kowloon, Hong Kong. He then joined the Government in 1977, initially in the Architectural Office of the then Public Works Department and was later transferred to the then Buildings Ordinance Office in 1981. He has extensive experience in designing, planning, construction and control of building and civil engineering projects.

Ir CHOY is a chartered civil and structural engineer, a Fellow of the IStrucE and the HKIE, and a Class 1 Registered Structural Engineer of the People's Republic of China. He has been appointed as an Adjunct Professor of the HKU and PolyU since 2004.

Ir CHOY is a career civil servant, rising to the rank of Assistant Director at the Buildings Department. He also serves the HKIE as a Vice President and the Professional Green Building Council as a Vice Chairman.

Ir Otto L T POON, BBS, OBE
Past President, HKIE

Ir POON is a chartered engineer with 50 years' E&M engineering experience and the founder of Analogue Group of Companies.

Ir POON had participated in public services both to the community and the engineering profession which included Advisory Council on the Environment, Energy Advisory Committee, Solicitors Disciplinary Tribunal Panel, Council for Sustainable Development, Trustee Board of Institution of Mechanical Engineers, the UK, as well as being the President of the HKIE (1998-1999), President of Hong Kong Association of Energy Engineers (2004-2008) and President of Association of Energy Engineers, Hong Kong Chapter (2006-2009).

Ir POON now serves as the Adviser to Bauhinia Foundation Research Centre, Chairman of Hong Kong Climate Change Forum, Council Member of Chinese Mechanical Engineering Society, and President of the Hong Kong Federation of Electrical and Mechanical Contractors.

Ir POON was awarded OBE in 1996, BBS in 2003 and the University Fellowship by PolyU in 2007. He was elected as an Outstanding PolyU Alumni and an Outstanding IMechE Branch Member of the Year.

Ir Gary C W KO
Chairman, HKIE-Continuing Professional Development Committee

Ir KO began his engineering career in CLP Power Hong Kong Limited as a Graduate Trainee after graduating with first class honours in electrical engineering from the University of Southampton, the UK in 1980.

Ir KO moved to the contracting business by joining Kum Shing Group as a Contracts Manager in 1991. Initially responsible for electric cable trenching business, he advanced with the growth of the Group and is currently the Executive Director and Chief Operating Officer to oversee multidiscipline contracts.

One integral part of Ir KO's career is to serve the profession and the public. He has been the Honorary Treasurer of the Institution of Electrical Engineers Hong Kong Branch and Chairman of the Electrical Division of the HKIE. Currently, he is the Vice Chairman of the Commission Internationale de l'Eclairage (Hong Kong), Chairman of the HKIE-Continuing Professional Development Committee, Honorary Advisor of the Hong Kong & Kowloon Electrical Engineering & Appliances Trade Workers Union and Member of Engineers Registration Board.

Profile of advisors

Profiles of delegates

Dr Ernest K W TSANG
Building Services Engineering

Delegation Manager, HKIE-YMC Deputy Chairman

Ernest obtained his Doctor of Philosophy from the CityU. Ernest is a specialist in building energy and daylighting modeling with more than ten research publications. Upon his graduation, he has joined Parsons Brinckeroff (Asia) Ltd. as a Sustainability Consultant. He involves in green building assessment and micro-climate analysis. He was invited as guest speaker on built-environment for professional institute. Ernest joined HKIE-YMC as a helper in 2005 and was elected as a Committee Member in 2008. He is currently the HKIE-YMC's Deputy Chairman.

Ms Arlene W L LO
Civil Engineering

Delegation Chairman / Treasurer, HKIE-YMC Chairman

Arlene obtained her Master and Bachelor Degrees in Civil and Environmental Engineering from the PolyU and subsequently acquired professional chartership recognized by ICE and HKIE. She is currently working as a Civil Engineer in the MTR Corporation Limited. Her key experience includes utilities infrastructure assessment, design of drainage, sewerage and water main system, main laying and trenchless rehabilitation and replacement of water mains. She has joined HKIE-YMC as a helper since graduation and became a Committee Member in 2006/2007. She is the Chairman in current session and actively organizes and participates in different functions such as Annual General Meeting and Annual Seminar. She had worked as Annual Dinner Manager, Overseas and China Delegation Deputy Manager and so on.

Ir Leo H Y CHAN
Information Engineering

Delegation Deputy Manager, HKIE-YMC Immediate Past Chairman

Leo graduated with a Bachelor Degree of Applied Science in Computer Engineering from the University of British Columbia, Canada. He further obtained a Master Degree in Business Administration from the University of Bradford, the UK. He is currently working as an Electronics Engineer in the EMSD, HKSAR Government. In addition to be a professional engineer in Hong Kong, Leo also holds the UK professional memberships with the British Computer Society and IET. Leo first joined HKIE-YMC as a helper in 2005. He had subsequently been elected as Committee Member (2006), Honorary Treasurer (2007), Deputy Chairman (2008) and Chairman 2009) of HKIE-YMC. He is currently the HKIE-YMC's Immediate Past Chairman.

Mr Ambrose H T CHEN
Mechanical Engineering

Delegation Deputy Manager, HKIE-YMC Committee Member

Ambrose obtained his Master Degree in Mechanical Engineering from Imperial College London; and is targeting his second Master Degree in Environmental Engineering at HKU. He joined the EMSD, HKSAR Government as a Graduate Trainee in 2008, where he gained knowledge and passion to develop a "eco-friendly" community by working in Energy Efficiency Office. He is now working as an Assistant Engineer in Project Division. As a Committee Member in HKIE-YMC, Ambrose participates actively in organising events and functions for promoting young engineers in Hong Kong.

Ms Sammy Y Y WONG
Building Services Engineering

Local Liaison Officer

Sammy obtained her Bachelor Degree in Mechanical Engineering from HKU. She now continues to enrich her professional knowledge by pursuing a Master Degree in Building Services Engineering there. Currently, working in the HKHA as a Building Services Engineering Graduate, she involves in building services system design of new housing projects, as well as maintenance strategies and implementation of existing housing estates. Sammy joined HKIE-YMC as a helper in 2009. She broadens her horizons by meeting engineers of different backgrounds through joining this Delegation and HKIE-YMC activities.

Ms Jessie C ZHANG
Civil Engineering

Local Liaison Officer

Jessie obtained her Bachelor Degree in Civil Engineering from HKU and she is currently pursuing her Master Degree in Geotechnical Engineering there as a part-time student. She has joined the Tunnel team of Geotechnical in AECOM Asia Co. Ltd. as a Graduate Engineer under the HKIE Graduate Scheme "A" Training upon her graduation of bachelor degree. She involves in engineering analysis, design submissions, and different kinds of development in Hong Kong especially the current railway development projects. This is the first time for her to join HKIE-YMC Overseas Delegation. She is keen to make friends with engineers from different backgrounds and hopes to explore engineering knowledge in the UK through this Delegation.

Ms Zara S Y TAM
Civil Engineering

Overseas Liaison Officer

Zara obtained her Bachelor Degree in Civil Engineering from the PolyU. She joined an exchange program at the Imperial College London last year. At present, she is working as a Graduate Engineer in the Highways and Transportation Infrastructure Department of Atkins China Ltd under the HKIE Graduate Scheme "A" Training.

Mr Oscar Y Y SUEN
Building Services Engineering

Secretary

Oscar obtained his Bachelor Degree in Mechanical Engineering from the HKU and is now targeting his Master Degree in Energy Engineering. Currently, he is working as a Building Services Engineering Graduate in the HKHA, HKSAR Government under the HKIE Graduate Scheme "A" Training. He is interested in future green technology. He hopes to gain engineering knowledge and experience in this Delegation.

Ms Phoebe W Y WU
Civil Engineering

Logistics Officer

Phoebe obtained her Master Degree in Civil Engineering from Imperial College London. She spent one year after her graduation in Dubai, United Arab Emirates, in preparation for the launch of Dubai Metro, which developed her special interests in the railway industry. Currently, she is working as a Graduate Engineer in the Railway team of Ove Arup & Partners Ltd. She has been involved in a railway project focusing on tunnel design and some general civil designs. As a member of this Delegation, she looks forward to witnessing some of the most fascinating projects in the UK and to meet more people from different walks of life.

Ms Melody M Y SHI
Environmental Engineering

Logistics Officer

Melody obtained her Master Degree in Environmental Engineering from HKUST. The focus of her postgraduate research was on the characterization and treatment of saline sewage. She is currently working as a Graduate Engineer in the Drainage team of Water and Urban Development in AECOM Asia Co. Ltd., where she gains experiences in drainage and sewage facilities design and management.

Ms Winnie H T CHAN
Civil Engineering

Editor

Winnie obtained her Bachelor Degree in Civil and Environmental Engineering from the University of California, Berkeley. She now continues to extend her knowledge in transportation planning by pursuing her Master Degree in Transportation Engineering from HKU. Winnie has great passion for bridges, and it has always been her motivation of becoming a civil engineer. At present, she is working as a Graduate Engineer in the Long Span and Specialty Bridges group of Transportation in AECOM Asia Co. Ltd. This exciting position allows her to gain experience enthusiastically in bridge design and relevant knowledge around the world.

Ir Agnes K M WONG
Chemical Engineering

Editor

Agnes obtained her Bachelor Degree in Chemical Engineering and Master Degree in Environmental Engineering from HKUST. Upon her graduation, Agnes joined the Hong Kong Observatory in the weather forecasting unit. At present, she is an Environmental Protection Officer at the Hong Kong Environmental Protection Department, HKSAR Government. She is responsible for the implement and setting of air policies.

Ms Suki X ZAHNG
Civil Engineering

Publication Officer

Suki obtained her Master Degree from Imperial College London. She is now working as an Assistant Geotechnical Engineer in AECOM Asia Co. Ltd., and her key experiences include ground freezing design, cut and cover tunnel design and seismic assessment, and drainage design for different projects.

Ms Justina T K YIM
Mechanical Engineering

Publication Officer

Justina obtained her Bachelor Degree in Mechanical Engineering from HKUST. She is currently pursuing her Master Degree in Industrial Engineering and Logistic Management in HKU, and working as a Graduate Trainee in CLP Power Hong Kong Ltd-Generation. She gains experiences in power plant operation and maintenance. She is especially interested in innovative green ideas for the future, as well as emission control facilities in power generation. She is currently a helper in Nuclear Division of HKIE.

Mr Eddie W C CHEUNG
Mechanical Engineering

Public Relation Officer

Eddie graduated with a Bachelor Degree in Mechanical Engineering and subsequently pursued a Master Degree in Environmental Engineering while undergoing the HKIE Graduate Scheme "A" Training. He has acquired professional chartership recognized by the UK Engineering Council. Before his present secondment, he worked as an E&M Engineer in the EMSD, HKSAR Government, where he specialized in energy efficiency and vehicle engineering projects. He is now servicing the Fire Services Department.

Dr Ernest K W TSANG

It is my great pleasure to lead the delegates to London. In this Delegation, we exchanged with overseas institutions, visited the Olympic venues and other related infrastructures. Through these activities, I appreciate the technical knowledge of the engineers there, and especially their underlay mindset of thinking and philosophy. I believe this experience could further develop and enhance my career. I also treasure this opportunity of sharpening my leadership skill as well as the gained friendship.

Ms Arlene W L LO

Worked, played and shared with other 14 delegates during this seven-day fruitful trip gives me a memorable Delegation. London has lots of similarity with Hong Kong. Her chance of holding the large scale event, 2012 Olympics, has stimulated a success in urban revitalization. It is a place where we can learn and explore the latest solution for urban revitalization, other than urban reconstruction. Special thanks to YMC for its continuous and precious support to make the trip successful.

Ir Leo H Y CHAN

London is a world-class city with well-blended traditional and modern engineering structures. Having 2012 Olympics as a focus, this Delegation widened my exposure in areas such as infrastructure development and town planning. I gained valuable knowledge in urban renewal, public engagement and the latest sustainability concepts. Furthermore, through organising this Delegation, not only could I sharpen my management skills, I also met some life-long friends. I recommend the YMC Overseas Delegation highly to all young engineers alike.

Mr Ambrose H T CHEN

This Delegation not only delivers us knowledge and experience, but also friendship, conscience, enthusiasm and many other things that we may not learn without this Delegation. The process of organising this Delegation, from prelude to finale; the speeches by the president, and the fun we had with the advisors, turned us into "hot" engineers enthused to form a better tomorrow.

We came along together, to this far, and we shall continue to run together for a better engineering profession.

Ms Sammy Y Y WONG

This Delegation means far more than gaining engineering knowledge and meeting overseas professionals. I am impressed by the enthusiasm of each delegate and the strong bonds between us that drive us to work in our best. This is shown from the preparation work beforehand and the production of the extraordinary Delegation Report. I hope to extend my passion for this Delegation to the entire engineering profession, making good use of my knowledge to create a better home for people!

Ms Jessie C ZHANG

It is my great honor to take part in this overseas Delegation to London. I got to see lots of amazing engineering projects especially London underground railway and urban planning around Dockland area where 2012 Olympics will be hold. In this trip, I had the opportunities to talk to the professional teams behind all the amazing projects that greatly inspired me and broadened my horizons. It is truly an invaluable experience and definitely an unforgettable part of my life.

Ms Zara S Y TAM

This Delegation has been a memorable and fruitful one. It enabled me to further explore the exciting side of the UK, let alone its sophistication and long history. Throughout the week, our team had shown great efforts and passion. I am sure the legacy is planted not only in the 2012 Olympics, but also inside everyone who has been part of this Delegation.

Mr Oscar Y Y SUEN

I am glad to have such a fruitful experience to broaden my horizons in the field of engineering in this Delegation. I have never thought of learning so much and exchanging knowledge related to sustainability and town planning even though the schedule was tight. This Delegation also trained me to work in a team of engineers with different backgrounds. It is my pleasure to involve in this unforgettable and remarkable Delegation.

Messages from delegates

Ms Phoebe W Y WU

The special thing about this Delegation was not only about visiting engineering projects and meeting overseas professionals. It was the spirit and passion which bring the young engineers together to work on a series of activities. It was definitely a rewarding experience and I am glad to be part of the team to go through the whole process. The 2012 Olympics acts as a catalyst for revitalising London, I believe this Delegation is a catalyst for us to move forward to face future challenges.

Ms Melody M Y SHI

This was an exciting and unforgettable memory to me. The preparation work was challenging with fun and fulfilling for working with a team of talent and energetic young fellows. The seven-day heart and soul experience did give me a new way of thinking and a new perspective to look at my life, my work and the world around. After the trip, I feel deeply and understand the responsibility and mission as a "world citizen".

Ms Winnie H T CHAN

Participating in this Delegation has been the most rewarding experience since I joined the industry. My engineering exposure has been widened on infrastructure development, town planning, and the corresponding sustainability promotion; my social skills were also further enhanced. I was deeply moved by our enthusiasm. Without such we would not have prepared a well-organised trip and produced this stellar Delegation Report which thoroughly expressed ourselves. I hope our passion would become the legacy to the industry and our ongoing career.

Ir Agnes K M WONG

It was really an unforgettable experience to take part in this Delegation. Not just because this was the first time I had been in London, but also the feeling of myself like a Londoner to travel around by Tube. I enjoyed the exchange program with the professional bodies – met new friends and learnt the differences of engineering prospect between the UK and Hong Kong. I owe all advisors and delegates for the friendship we make and the fire in our heart.

Ms Suki X ZHANG

I have never thought of learning this much when I applied this Delegation initially. Although I had lived in London for one year, this trip brought me lots of new ideas of the daily stuff in London; it was interesting to find a common thing in your life with a whole new story.

It was also a good experience that we can exchange our idea with the overseas engineers, as there were lots of things we may learn from them.

Ms Justina T K YIM

This Delegation was the one that we can learn, explore, and make friends. In preparing so, the most encouraging moment happens when we collectively work out a solution to the encountered challenge. This positive energy has no doubt contributed to the success of this Delegation. Knowing young engineers with passion in the industry will definitely help us to share our pain and gain.

Sweet memories of our trip in London has become my motivation in my future career as an engineer.

Mr Eddie W C CHEUNG

London Olympics is the highlight of 2012 and I am excited to study this international event from engineering prospective in advance! I have organised a similar delegation on Beijing Olympics in 2006 and this Delegation becomes a great opportunity to draw comparison. Through seminars on design concepts, site visits of under-construction venues, discussions with engineers and exchanges with institutions, I learnt much more than I had expected. And the whole process of organising this Delegation was also rewarding!

Delegation Timeline

Since YMC Overseas Delegation 2008 to Australia, YMC has sought support from the HKIE-Continuing Professional Development Committee as a co-organiser for this meaningful activity. During the 2010/2011 session, YMC submitted a proposal to the HKIE-Continuing Professional Development Committee in August 2010 and it was approved in mid-September 2010. Subsequently, YMC issued promotional material to all Registered Young Members (RYMS) and the application was opened till th end of October 2010. At the meantime, we invited some experienced engineers to be our advisers. In November 2010, with the support from the advisers, YMC arranged six interview sessions which were chaired and scored by the advisers.

In early December 2010, the results were announced and the Delegation was formed. We started the preparation works by contacting overseas organizations, settling logistic arrangements, and performing related studies. In order to extend the benefits of this Delegation to all RYMs, the team also conducted series of seminars and visits that are related to chosen theme of the Delegation.

The Delegation trip spanned from 20th to 26th March 2011. After the trip, delegates consolidated the findings in the UK, which included exploring their potentials application to Hong Kong practice, and producing a study report which will be distributed and available to be downloaded from the YMC website. This Delegation was ended by a seminar which was delivered by the delegates on 17th June 2011.

Itinerary

20 March, Sunday

05 - 09
Arriving at LHR

10 - 19
City Tour by HKIE UK Chapter

21 March, Monday

09 - 10
Olympic Park Bus Tour by ODA

10 - 12
Seminar on Olympic Programme by ARUP

12 - 13
Lunch

14 - 16
Seminar on Olympic Facilities by Buro Happold

17 - 18
Seminar on Land Remediation by CIRIA

19 - 21
HKIE UK Chapter Dinner

22 March, Tuesday

09 - 10
Seminar on High Speed 1 and 2 by ARUP

10 - 12
Visit to St Pancras Station Visit

12 - 13
Lunch

18 - 21
HKIE President's Reception

23 March, Wednesday

12 - 13
Lunch

14 - 17
Visit to BedZED

19 - 21
Experience Sharing with ICE GSNet

24 March, Thursday

10 - 12
Visit to Imperial College

12 - 13
Lunch

16 - 18
Visit to IET Headquarters

25 March, Friday

10 - 12
Seminar on Town Enhancement by LDA

12 - 13
Lunch

14 - 16
Visit to Greenway

19 - 20
HKIE President Presentation

20 - 21
IMechE Gathering

26 March, Saturday

20 - 21
Departing at LHR

Acknowledgement

We would like to express our deepest gratitude to the following organisations for their helpful guidance and enduring support leading to the success of this Delegation:

- Atkins Limited
- BioRegional Development Group
- Buro Happold Ltd.
- Construction Industry Research and Information Association
- The Hong Kong Institution of Engineers - UK Chapter
- Imperial College London - Department of Electrical and Electronic Engineering
- The Institution of Civil Engineers - Graduates and Students Network
- The Institution of Engineering and Technology
- The Institution of Mechanical Engineers, Young Members' Board
- London Development Agency
- Ove Arup & Partners Ltd.

We appreciate very much the financial support from the following sponsors:

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- Leighton Contractors (Asia) Limited
- Meinhardt (Hong Kong) Limited
- MTR Corporation Limited
- Ove Arup & Partners Hong Kong Limited

We would also like to express our special thanks to the following people who generously assist us in this Delegation:

- Dr Colin CLINTON
- Ir Crystal HO
- Ir Thomas LAI
- Ir Johnson LEE
- Ms Sally LEUNG
- Mr David LITTLER
- Mr David PICKLES

Acronyms

4R	Redevelopment, Rehabilitation, Revitalisation and heritage pReservation
BedZED	Beddington Zero Energy Development
CEDD	Civil Engineering Development Department
CHP	Combined Heat and Power
CIRIA	Construction Industry Research and Information Association
CityU	City University of Hong Kong
CWB	Central-Wan Chai Bypass
DLR	Docklands Light Railway
EEE	Electrical and Electronic Engineering
EMSD	Electrical and Mechanical Services Department
HATS	Harbour Area Treatment Scheme
HKHA	Hong Kong Housing Authority
HKIE	Hong Kong Institution of Engineers
HKSAR	Hong Kong Special Administration Region
HKU	University of Hong Kong
HKUST	Hong Kong University of Science and Technology
HS1	High Speed 1
HS2	High Speed 2
KTD	Kai Tak Development
ICE	Institution of Civil Engineers
ICE GSNet	ICE Graduate and Student Network
LDA	London Development Agency
LDDC	London Docklands Development Corporation
LHR	London Heathrow Airport
IET	Institution of Engineering and Technology
IMechE	Institution of Mechanical Engineers
IStructE	Institution of Structural Engineers
LOCOG	London Organising Committee of the Olympic Games and Paralympic Games
MTR	Mass Transit Railway
MTS	Mayor's Transport Strategy
ODA	Olympic Delivery Authority
PolyU	Hong Kong Polytechnic University
RYMs	Registered Young Members
SCAD	Savannah College of Art and Design
SSDS	Strategic Sewage Disposal Scheme
TPH	Total Petroleum Hydrocarbon
UK	United Kingdom
URA	Urban Renewal Authority
URS	Urban Renewal Strategy
VOCs	Volatile Organic Compounds
WKCD	West Kowloon Cultural District
XRL	Express Rail Link
YMC	Young Members Committee

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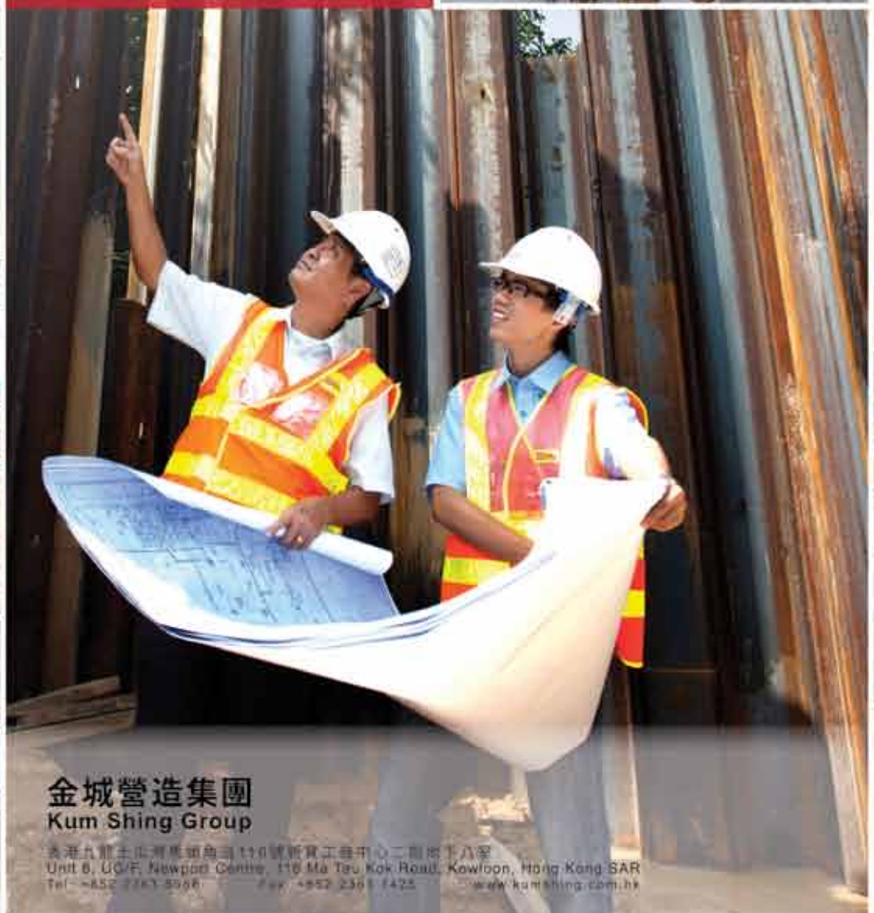

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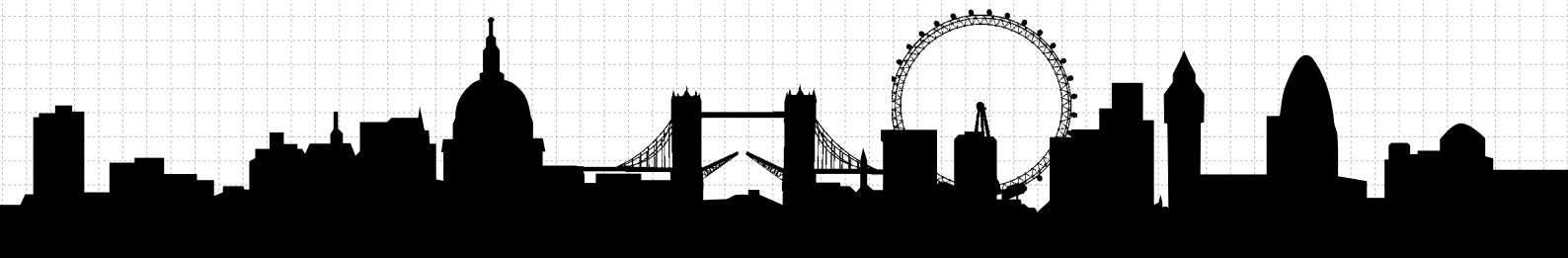

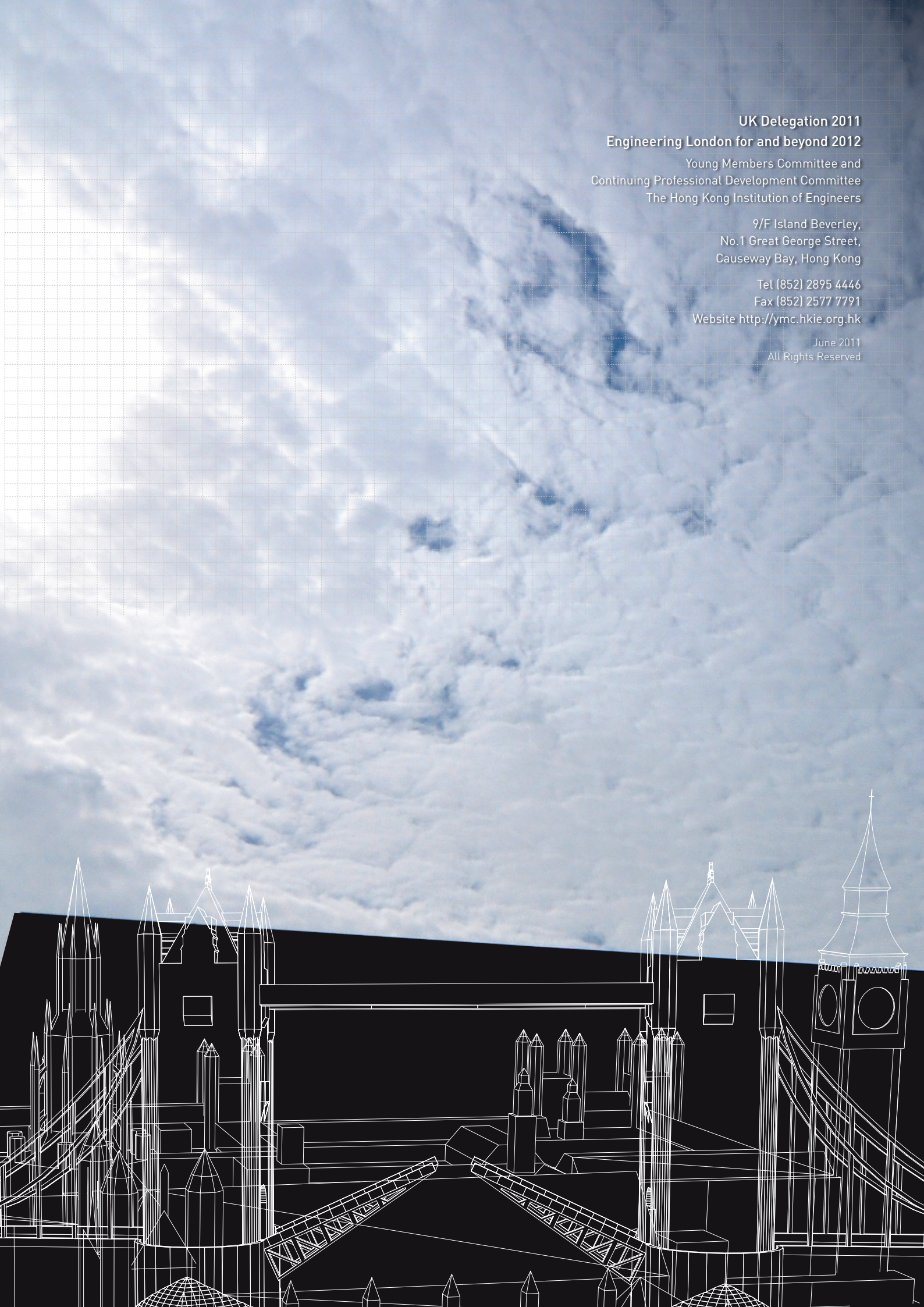

UK Delegation 2011
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