Vol.48 No.2 2013

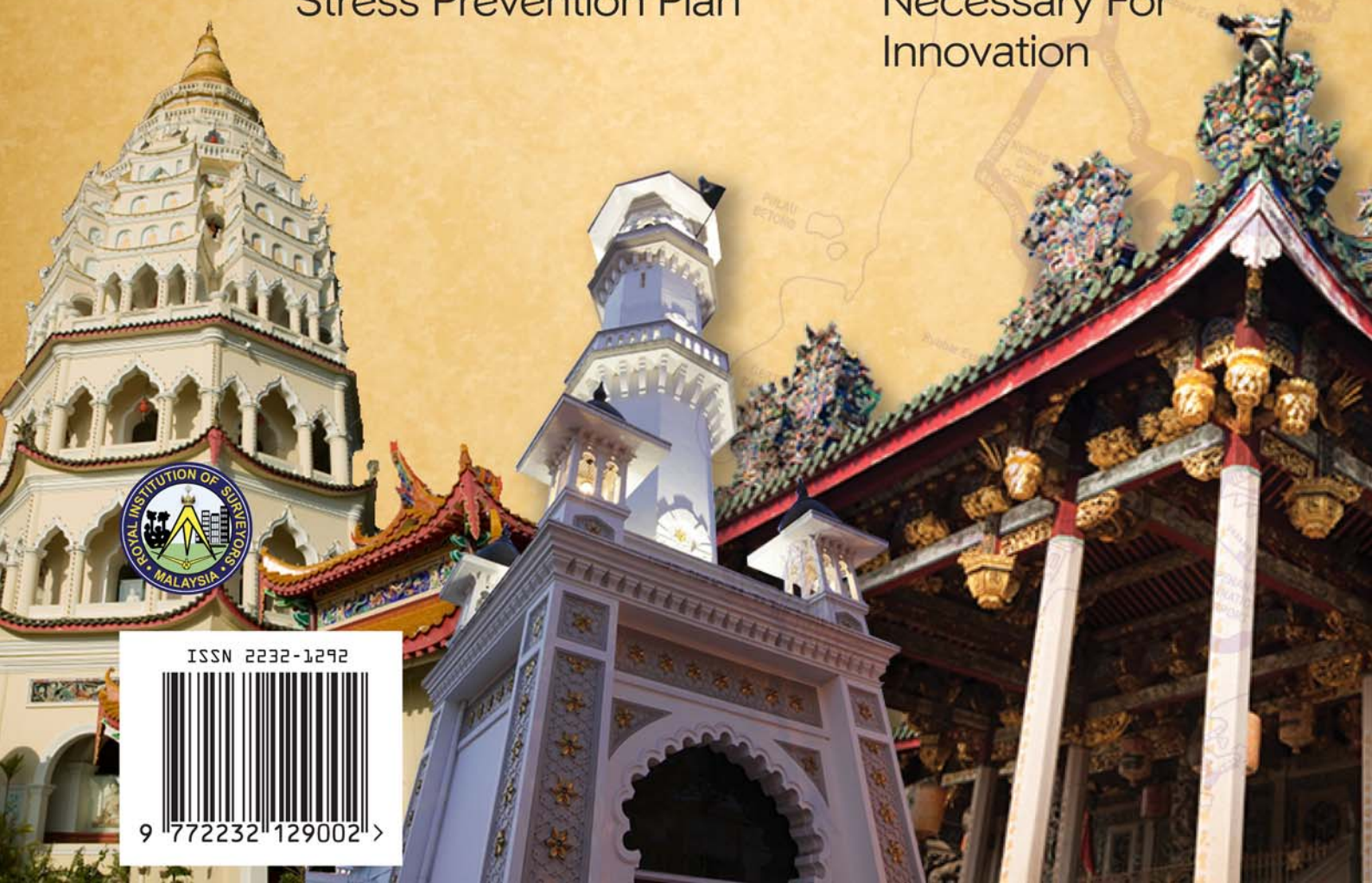
The Malaysian Surveyor

THE PROFESSIONAL JOURNAL OF ROYAL INSTITUTION OF SURVEYORS MALAYSIA

Heritage Building Conservation

Managing Stress
Managing Stress by Developing a Personalised Stress Prevention Plan

Management
Whether Prior Experience Is Necessary For Innovation



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"CURRENT ECONOMIC SCENARIO: CHALLENGES AND OPPORTUNITIES"

JOINTLY ORGANIZED BY

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The Malaysian Surveyor is a quarterly publication which covers the development of the surveying profession, innovations in the surveying technology and surveyors' contribution towards the property market and building industry.

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The Malaysian
Surveyor
THE PROFESSIONAL JOURNAL OF ROYAL INSTITUTION OF SURVEYORS MALAYSIA

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EDITORIAL

CHALLENGING THE CHALLENGES FOR THE SURVEYING PROFESSION

During my term as Editor and Council member of RISM, I observed two distinctive groups of surveyors in RISM i.e. the professional surveyors and the academic surveyors. The professional surveyors will refer to surveyors as those who practice surveying whether in the public or private sectors, whilst the academic surveyors will refer to surveyors as those who work as academicians in institutions of higher learning.

The increase in academic surveyors can be attributed to an increase in surveying courses offered in the public and private institutions of higher learning. Academic surveyors are coming to the fore by participating actively in various committees and council positions.

Both groups contribute to the surveying profession in many ways which are similar and yet different.

Looking forward to the next 50 years, I reckon more have to be done to enhance the future prospects of the surveying profession. The challenges to the surveying profession are no more confined within the national boundary. External challenges arising from globalisation, liberalisation, fund flows, technology advancement, computer science, information technology, financial crises etc. have great impacts on the education, training and practice of the surveying profession.

To take up the challenge on these challenges, my wish lists for the professional surveyors are:

- More surveying professionals are keen to write full articles/papers rather than preparing seminar/conference presentations in powerpoints.
- More surveying professionals are prepared to cross the professional-academia divide by embracing research as a tool for the advancement of professional practice and business development.
- More surveying professionals pursue postgraduate education for the enhancement of knowledge.
- More surveying professionals respond to the media on public issues relating to the surveying profession and built environment.
- More surveying professionals provide thought leadership in their respective fields.
- More surveying professionals voluntarily taking up leadership roles and positions whether in local or international organisations.
- More surveying professionals could be innovative in their service delivery through the Blue Ocean strategy.

On the other hand, my wish lists for the academic surveyors are:

- More academic surveyors are keen to write practice papers and not necessarily academic research papers.
- More academic surveyors are keen to rewrite research papers in a manner which is accessible and easily understood by professionals.
- More academic surveyors are able to move out of the academic ivory tower and reach out to the profession, society and government.
- More academic surveyors take up leadership roles in academic and professional organisations at local and international level.
- More academic surveyors respond to the media on public issues relating to the surveying profession and built environment.
- More academic surveyors could bridge the academic-professional practice divide by having better industry linkages, ties and relationships.
- More academic surveyors could provide research leadership by carrying out cutting-edge research.
- More academic surveyors provide thought leadership that could guide the future of the surveying profession.

Both lists could go on and on. The keywords to the future are leadership, innovation and of relevance to the society.

Professor Sr Dr. Ting Kien Hwa FRISM
Editor
Session 2010/2011-2012/2013

ANNOUNCEMENT

MAY 2014 PROFESSIONAL EXAMINATIONS

(DIRECT FINAL/FINAL, INTERMEDIATE, FIRST AND FOUNDATION EXAMINATIONS)

Applications to sit for the above examinations are now open and application forms can be obtained from the RISM Secretariat. The application form should be submitted to the RISM Secretariat **not later than December 31, 2013 together with the examination fees.**

A penalty fee is payable if you submit your application between January 1, 2014 and February 28, 2014 after which no application will be accepted. The rules and syllabuses of the Professional Examination and past years question papers are available for sale at the RISM Secretariat.

The examination fees are as follows:-

1. Foundation Exam – RM30.00 per subject
2. First Exam – RM50.00 per subject
3. Intermediate Exam – RM100.00 per subject
4. Final/Direct Final Exam – RM150.00 per subject

Young Achievers' Awards (YAA)

National Competition 2012-2013

THE YAA NATIONAL FINAL WAS SUCCESSFULLY hosted at Hotel Singgahsana, Petaling Jaya on the 20 April 2013.

For this session due to the overwhelming support from the sponsors, YAA was hosted for three days two nights instead of the usual two days one night. This allows the students to bond better and the organizing committee was able to include more activities, among others a technical visit to KeTTHA project in Karak and an eXtraDiction Game. YBhg. Dato' Sr Abdull Manaf Hj Hashim was the Guest of Honour for the prize giving during the Gala Dinner held on 20 April 2013.

Sixteen (16) schools participated and they were:

(a) East Cost Branch

Sekolah Menengah Kebangsaaan Ahmad Maher

Maktab Sultan Ismail

Sekolah Menengah Kebangsaan Kamil

(b) Northern Branch

Sekolah Menengah Jenis Kebangsaan Chung Ling, Pulau Pinang

Penang Chinese Girls High School

Penang Free School

(c) Johore Branch

Maktab Sultan Abu Bakar

Sekolah Menengah Kebangsaan Dato' Ali Ahmad

Sekolah Tun Fatimah

(d) Central Branch

Sekolah Menengah Kebangsaan Aminuddin Baki

Sekolah Menengah Kebangsaan Convent Bukit Nanas

Sekolah Menengah Kebangsaan Meru

Sekolah Menengah Vokasional Sepang

Sekolah Menengah Kebangsaan Damansara Jaya

Sekolah Menengah Kebangsaan Tun Razak

ST John's Institution

A half day Technical Visit to Projek Penyaluran Air Mentah Pahang-Selangor (Karak) was held on Friday, 19 April 2013 and a welcome Dinner at Restoran Nelayan Gombak.

The eXtraDiction game was conducted on the morning of 20 April 2013 just before the YAA Competition. The winner for the eXtraDiction game as follows:

Champion

Maktab Sultan Ismail

1st Runner up

Sekolah Tun Fatimah

2nd Runner up

Sekolah Menengah Kebangsaan Damansara Jaya

The Winners for the YAA National Final Result Session 2012/2013 are as follows

Champion

SMK Damansara Jaya, Petaling Jaya receiving RM3,000.00 in cash, winning plaques, trophy and YAA Challenge Trophy.

1st runner up

Sekolah Tun Fatimah, Johor receiving RM2,000.00 in cash, winning plaques and trophy.

2nd runner up

SMJK Chung Ling, Pulau Pinang receiving RM1,000.00 in cash, winning plaques and trophy.

The Chairperson and the Organizing Committee wish to express their gratitude to the following sponsors for their continuous support:

1. Association of Authorised Land Surveyors Malaysia
2. Board Of Land Surveyors Malaysia
3. Board of Quantity Surveyors Malaysia
4. Board of Valuers, Appraisers & Estate Agents Malaysia
5. Construction Industry Development Board Malaysia
6. C.H. Williams Talhar & Wong Sdn Bhd
7. Econcos Consultants Sdn Bhd
8. Geometra Surveys Sdn Bhd
9. Henry Butcher Malaysia Sdn Bhd
10. HMF QS Consult
11. Jurukur Bahan Antara
12. Metropolis Property Consultants Sdn Bhd
13. MF Associates Sdn Bhd
14. Mokhnar & Associates
15. Mojigoh Surveying Consultants Sdn Bhd
16. Pakatan Ukur Bahan Sdn Bhd
17. Perunding PCT Sdn Bhd

RISM Family Day 2013

THE COMMITTEE HAS successfully organised the RISM Family Day 2013 on 13 April 2013 at Tasik Taman Jaya, Petaling Jaya, Selangor.

RISM members and their families together with seven children from Rumah Solehah Orphanage were entertained by MC YM Sr Dr. Tunku Fauzi Dato' Tunku Abd. Malek, who is an energetic aerobics instructor and Az the Clown while mingling at the 10 table flea market. The flea market sells goodies ranging from food to antiques.

The participants were from all ages who took part in the well-organised telematch, quiz at Museum Petaling Jaya and karaoke competition before enjoying a good buffet lunch. The buffet spread included, amongst others, *satay* and ice cream *potong*.

Sabah International Surveyors' Congress (6th Sabah Surveyors' Congress)

Economic Turbulence

Survival or Opportunities?

THE ROYAL INSTITUTION OF SURVEYORS Malaysia (Sabah Branch) has successfully organised our 6th Sabah Surveyors' Congress with the collaboration of the Royal Institution of Chartered Surveyors Malaysia and the Sabah Surveyors Board on 14th and 15th May 2013 at the Pacific Sutera Hotel, Kota Kinabalu, Sabah.

After organising five previous Sabah Surveyors' Congress, RISM Sabah Branch ambitiously decided to give ourselves a big challenge by organising a congress one-level-up at the international level. The result – the first Sabah International Surveyors' Congress was born! The first Sabah International Surveyors' Congress was attended by 206 participants, the highest figure in our record so far!

The Guest of Honour of the Congress was the Director of the Department of Lands and Surveys, Sabah, Datuk Sr Hj Osman bin Hj Jamal, a fellow of both the Royal Institution of Surveyors Malaysia and the Royal Institution of Chartered Surveyors. In his address, the Director pointed out that no one is spared from business turbulence and that "preparedness" is the essence in overcoming turbulence successfully.

He said, "The theme for the Congress is "Economic Turbulence – Survival or Opportunity?" This is

indeed an appropriate theme in the business world of change and uncertainty. None of us can be spared from the effect of economic turbulence. Perhaps, some of us are more prepared and, therefore, less severely affected than others by the turbulences of the economy. However, when we are caught unprepared, an unexpected economic turbulence may tip our business off balance and cost us dearly."

He continued to say in his concluding remark that, "Economic turbulence, whether it is a game of survival or a golden opportunity depends on how you perceive the market and how well prepared you are in creating a sustainable long-term profitable business model. Success is often found at the end of a long journey and to be successful, we must be ready and able to smooth over the challenges of the bumpy stretch of the journey."

The keynote speaker of the Congress was Sr Ong See Lian, the immediate global Past President of the Royal Institution of Chartered Surveyors. In his keynote address, Sr Ong gave an insightful overview of the importance of the surveying professions within the context of a fast growing and changing world economy. We had local speakers as well as international speakers from Singapore, Brunei and China. The participants were kept wide awake throughout the Congress by the learned speakers.

The topics included "Mapping Transformation: Defence and Security" by Brigadier General Dato' Ir Zaharin bin Din, "Singapore's Smart Cadastre System" by Mr Soh Kheng Peng, "National Spatial Data Infrastructure of Brunei Darussalam" by Dr Hjh Norzammi, "Building Information Modelling" by Dr Kherun Nita Ali, "Asset Management for Building and Related Infrastructure" by Mr Chin Chi Haw, "Project Management – A Case Study in Shanghai" by Mr Eric Yip, "Affordable Housing Policy in Singapore" by Dr Anthony Yeong, "Property Management from the Surveyors' Perspective - Challenges in the Current Era" by Sr Prem Kumar, "Value Management: The Economic Management of Public Construction Projects"by Puan Rohanis binti Ad Ghani, "Waste Minimisation in Construction Industry" by Dr Mohd Pauze Bin Mohamad Taha and others.

We were also privileged to have the Deputy Speaker of the Sabah State Assembly, Datuk Dr Johnson Tee, a great motivational speaker, as one of the speakers. After a more sombre topic of "Economic Indicators for Real Estate Investment in Sabah" presented by Sr Liaw Lam Thye, Datuk Johnson enlightened the participants and turned the hall into sounds of rolling laughter with his humorous and comical approach throughout his presentation on "Confidence in Managing Turbulence". In one story, he told of the 'frog' who beat all others in a racing competition to be the only one to reach a high tower. The reason for its success has nothing to do with its physical fitness. The champion frog succeeded because it did not listen to the discouragement from others, it believed in itself. At the end, we found that the champion frog was deaf!

No doubt, the organising committee had experienced turbulences in the process of organising the Congress. But with a close and self-giving collaboration of the organisers, the speakers and the participants, the first Sabah International Surveyors' Congress had turned out to be a jubilant success. The Congress Organising Committee wishes to thank all the speakers, participants and supporters for making this Congress a great success.

Royal Institution of Surveyors Malaysia

Educational Loan Awards for 2012/2013

Royal Institution of Surveyors Malaysia invites application from Malaysia Citizens for Educational Loans to pursue full-time courses at local universities.

Universities

University of Malaya
University of Technology Malaysia
University of Technology MARA
University of Science Malaysia
International Islamic University of Malaysia
University Tun Hussein Onn Malaysia

Field of Study

Land Surveying
Quantity Surveying
Building Surveying
Property Management / Estate Management

Eligibility

- Candidates must have obtained an offer for admission for full time studies to any of the universities in any of the field specified above.
- Candidates must not have received any scholarship or financial assistance from the Government or any other organization.
- Candidates must have obtained at least CGPA of 3.20 to be short listed to call for an interview.

Special Incentive

- Degree course candidates who obtained in their studies with CGPA 3.75 and above, the student having to first apply for the conversion of the loan to scholarship for consideration and approval by General Council.
- Diploma course candidates are not eligible to apply for conversation of their loan to scholarship.

Value of Loan

Degree: Up to RM7,000 per annum
Diploma: Up to RM5,000 per annum

Guarantors

Candidates shall obtain the consent of two acceptable guarantors who must provide personal guarantee for repayment of the loan.

Repayment of Loan

Loan amount must be repaid with a period of not less than 36 months after the recipient has graduated.

How to apply

The application form, may be obtained from the RISM Secretariat or downloaded from RISM website: http://www.rism.org.my.

All application must be sent to:
The Chairman
Scholarship and Education Fund Committee
Royal Institution of Surveyors Malaysia
3rd Floor, Bangunan Juruukur, 64-66, Jalan 52/4, 46200 Petaling Jaya

Pemuliharaan & Pembaikan Masjid Kayu Tradisional

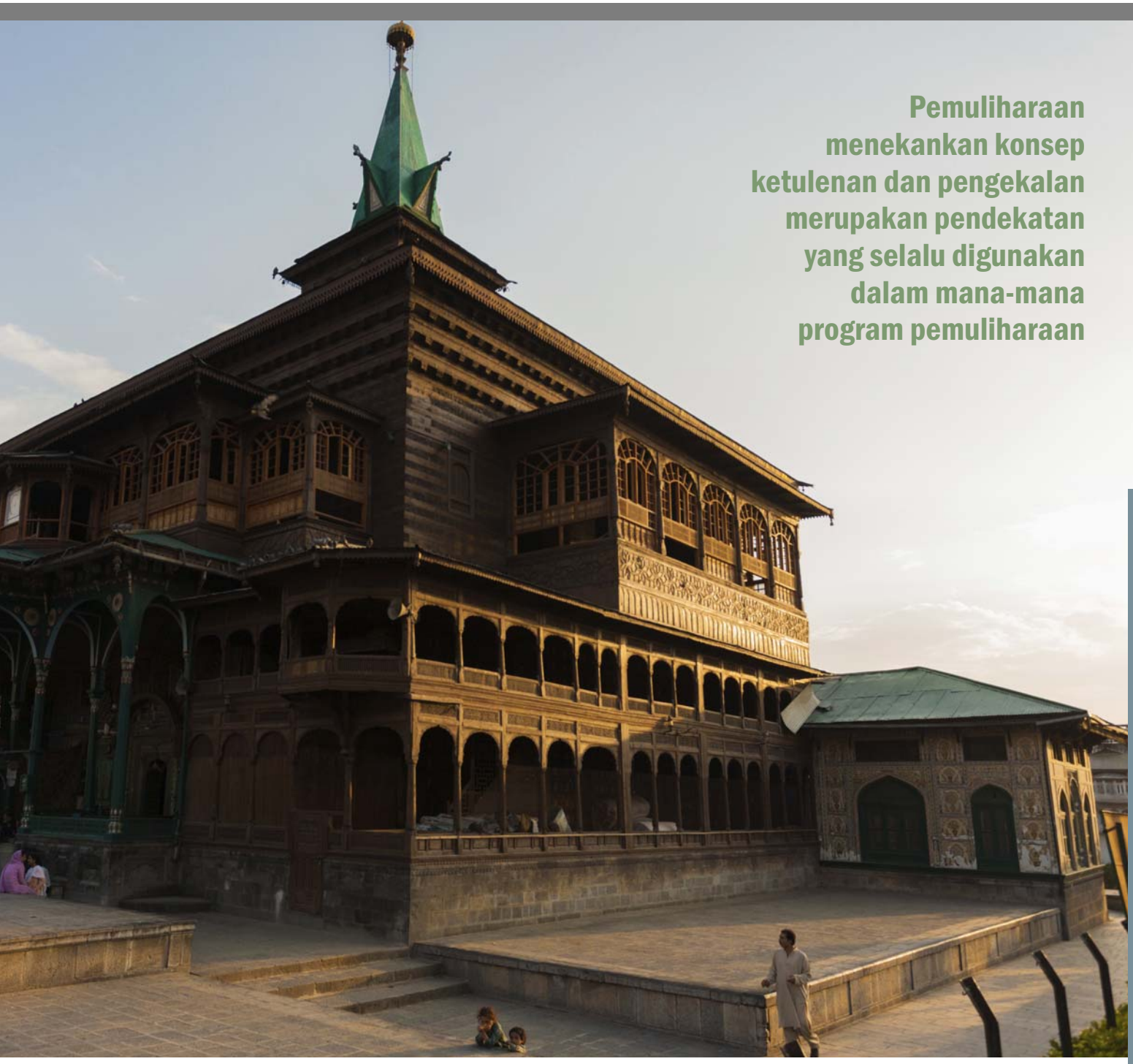
Suhana Johar[1], Hafsah Yahaya[2], Adi Irfan Che-Ani[1], Norngainy Mohd. Tawil[1], Mazlan Mohd. Tahir[1]

1 Fakulti Kejuruteraan & Alam Bina, Universiti Kebangsaan Malaysia (UKM), 43600 UKM Bangi, Selangor
2 Fakulti Senibina & Alam Bina, Twintech International University College of Technology Malaysia (TWINTECH), 52200 Kuala Lumpur

Kecacatan dan kerosakan adalah lumrah dalam mana-mana bangunan tidak kira pada bangunan baru atau lama. Bangunan yang dibina dari bahan kayu sememangnya tidak dapat lari dari faktor kerosakan dan kecacatan yang dapat mengurangkan nilai kepenggunaan. Dalam melakukan mana-mana kerja pembaikan, penelitian terhadap punca kerosakan adalah penting begitu juga dengan pemilihan teknik pembaikan. Dalam amalan pemuliharaan, beberapa prinsip kerja perlu difahami terlebih dahulu, tentang apa yang boleh dan apa yang tidak seharusnya dilakukan bagi memastikan objektif pemuliharaan suatu elemen itu benar-benar dicapai. Beberapa teknik digunapakai dalam memulihara elemen kayu seperti teknik penggantian samada penggantian penuh atau sebahagian, sistem WER, suntikan resin dan penggunaan sistem sokongan mekanikal bagi memastikan bahan binaan ini dapat terus dikekalkan penggunaannya.

1.0 Pengenalan

PEMULIHARAAN DI MALAYSIA MERUPAKAN SATU BIDANG YANG TIDAK asing lagi. Walaupun ia bermula agak lewat berbanding dengan negara-negara luar yang lain, perkembangan bidang ini semakin mendapat tempat di hati masyarakat Malaysia kini. Di celah-celah kepesatan pembangunan dan perkembangan teknologi, masih terselit kesan-kesan dan tinggalan sejarah yang masih berdiri seperti Bangunan Sultan Abdul Samad, Masjid Jamek di Kuala Lumpur, Masjid Tengkera di Melaka, tugu-tugu dan sebagainya. Bangunan-bangunan lama ini yang masih berdiri teguh jelas menunjukkan keunikan seni binanya dan peninggalan bangunan bersejarah ini yang tidak ternilai harganya (Ahmad, 1997; Kamal, 2007). Kepentingannya tidak boleh disangkal, justeru itu, pemuliharaan menjadi satu tanggungjawab penting yang harus dipikul oleh setiap individu dalam masyarakat masa kini khususnya bagi mengekalkan



Pemuliharaan menekankan konsep ketulenan dan pengekalan merupakan pendekatan yang selalu digunakan dalam mana-mana program pemuliharaan

kesinambungan sejarah yang pernah berlaku dahulu.

Sebagaimana bangunan dengan rekaan istimewa yang lain, masjid juga turut menyumbang kepada kesinambungan seni bina di negara ini. Masjid-masjid lama dengan rekaan vernakular tradisional ini amat perlu dipulihara kerana bilangannya amat sukar didapati sekarang. Sungguhpun masjid-masjid ini telah banyak yang mengalami perubahan dari segi penggunaan bahan binaan asal, namun kebanyakannya masih mengekalkan penggunaan struktur yang sama. Masjid-masjid lama ini dahulunya menggunakan kayu-kayu keras tempatan, dibina dengan menampilkan kehalusan dan kemahiran seni pertukangan yang sukar didapati sekarang.

Dalam meniti usia yang semakin meningkat, bangunan masjid ini juga tidak terlepas dari mengalami masalah kecacatan dan kerosakan akibat proses 'wear and tear'. Masalah ini jelas dapat dilihat lebih-lebih lagi pada bangunan lama yang tidak dijaga dan tiada penyelenggaraan khusus dilakukan. Lazimnya, masalah yang sering melanda pada bangunan kayu khususnya bangunan yang berada dalam kawasan tropika adalah kebanyakannya berpunca akibat lembapan dan serangan biologi seperti anai-anai dan kulat pereput.

Pendedahan yang berterusan pada ejen perosak dan persekitaran tanpa langkah pencegahan yang betul akan menyebabkan bangunan lebih cepat usang (Glover 2000, Abdullah 1994). Dalam menjalankan kerja-kerja pembaikan, perlunya pemahaman terhadap punca kerosakan bagi memastikan cara pembaikan terbaik dapat dicapai. Malah, pemahaman terhadap punca dan agen kerosakan dapat mengurangkan risiko kerosakan yang lebih besar (Glover, 2000). Kecacatan bangunan perlu dilihat secara menyeluruh dan kegagalan dalam mengenal pasti kecacatan bangunan boleh menyebabkan pemilihan kerja pembaikan yang salah (Richardson, 2001 & Ransom 1981). Kerja pembaikan yang dijalankan haruslah tepat dengan kerosakan dan tidak merosakkan nilai warisan yang wujud dalam suatu struktur tersebut (Fielden, 2000).

Pemuliharaan menekankan konsep ketulenan dan pengekalan merupakan pendekatan yang selalu digunakan dalam mana-mana program pemuliharaan. Mengekalkan penggunaan bahan asal, seni bina, ciri-ciri sejarah dan sebagainya adalah beberapa aspek yang sering ditekankan. Pemilihan dan penggunaan teknik pembaikan yang betul pada struktur berkayu adalah penting selain bagi memenuhi objektif pemuliharaan, suatu struktur berkayu dapat terus digunakan dan mengekalkan nilai-nilai warisan yang ada padanya.

2.0 Apakah Pemuliharaan dan Konsep Pemuliharaan

Umumnya pemuliharaan dikenali sebagai aktiviti atau tindakan untuk memanjangkan hayat sesuatu benda. Pemuliharaan mengandungi dua aktiviti iaitu pulih dan pelihara; dan merupakan penjagaan terhadap sesuatu daripada musnah atau diubah tanpa perancangan yang teliti (Harun, 2005). Pemuliharaan juga dilihat sebagai proses menguruskan perubahan dan dalam waktu yang sama pembangunan merupakan mekanisme yang membawa perubahan (Orbasli, 2008). Maksud pemuliharaan khususnya apabila digunakan dalam bidang alam bina juga meliputi aktiviti untuk mencegah pereputan, yang mengandungi semua perbuatan untuk memanjangkan hayat suatu budaya dan warisan semula jadi (Fielden, 2000).

Berdasarkan pandangan Fielden (2000), aktiviti dan amalan pemuliharaan dilihat sebagai suatu yang teknikal yang mana langkah atau aktiviti untuk mencegah pereputan memerlukan pengetahuan dan kaedah yang bersifat sains. Definisi pemuliharaan yang diberikan tidak hanya menumpu pada aspek teknikal malah ia juga menjurus kepada perancangan dan pengurusan bangunan bersejarah yang lebih dinamik dalam proses dan pemanjangan hayat bangunan.

Dalam pemuliharaan, penelitian terhadap aspek 'nilai' merupakan perkara penting dalam menentukan kepentingan suatu harta budaya untuk dipulihara (Fielden, 2000). Konsep keaslian pula amat ditekankan bagi memastikan suatu harta budaya itu adalah benar-benar bernilai untuk dipulihara. Ini ditegaskan oleh Young (1991) bahawa suatu warisan itu perlu dipulihara dengan keasliannya yang sebenar sebagaimana bukti sejarah yang ada kerana ia merupakan sebahagian daripada bahan-bahan dokumentasi yang membolehkan suatu anggapan berkenaan masa lampau

Penelitian terhadap aspek keaslian bahan penting kerana ia membolehkan kita mengetahui tentang teknologi yang lepas

dapat dilakukan. Menurut Fielden (1979), dalam melaksanakan kerja-kerja pemuliharaan, empat (4) aspek keaslian yang perlu dipertimbangkan dan dipraktikkan seperti yang digariskan oleh ICCROM (International Centre for Study on Preservation and Restoration of Cultural Property) iaitu keaslian bahan, keaslian reka bentuk, keaslian mutu kerja dan teknik pembuatan dan keaslian susun atur dan pembinaan. Penelitian terhadap aspek keaslian bahan penting kerana ia membolehkan kita mengetahui tentang teknologi yang lepas. Ini turut dinyatakan oleh Rahman (2006) bahawa kerja-kerja pemuliharaan yang berteraskan keaslian hendaklah dipraktikkan di mana pengekalan haruslah dibuat terhadap bahan binaan berdasarkan kepada jenis bahan, warna dan tekstur. Menurut Fielden (2000), kepelbagaian transformasi yang telah dialami bagi sesebuah bangunan telah melahirkan konsep keaslian reka bentuk iaitu kajian bagi mengenal pasti struktur asal bangunan, gaya seni bina dan hubungan bangunan dengan persekitaran. Keaslian pada susun atur bangunan perlu bagi dapat memberi gambaran sebenar berkenaan bentuk bangunan dan mengaitkannya dengan peristiwa-peristiwa sejarah yang pernah dialami. Biasanya keaslian ini dapat ditentukan dengan melakukan penyelidikan arkeologi (Harun, 2005). Manakala, keaslian mutu kerja adalah bagi mengekalkan ketulenan seni pertukangan dan teknik pembuatan yang amat sukar didapati sekarang.

3.0 Prinsip dan Pendekatan Pemuliharaan Masjid

Beberapa prinsip asas dalam melaksanakan kerja pemuliharaan perlu difahami terlebih dahulu. Prinsip merupakan aspek penting yang menjadi panduan dalam mana-mana aktiviti pemuliharaan bangunan dan monumen bersejarah. Ini terkandung dalam pelbagai piagam antarabangsa.

Pemuliharaan telah dikenal pasti sebagai satu tindakan atau aktiviti yang berkaitan dengan kerja-kerja membaiki kerosakan dan penjagaan bangunan bersejarah. Setiap aktiviti pemuliharaan itu akan melibatkan gangguan iaitu perkara yang menyentuh kepada 'nilai' suatu bangunan bersejarah. Gangguan tersebut adalah sebaiknya yang paling minima kerana ia akan melibatkan kehilangan nilai dan seharusnya ia boleh dikawal atau disesuaikan mengikut keadaan. Ini dinyatakan dalam mana-mana piagam antarabangsa yang berfungsi bagi memandu kerja-kerja pemuliharaan warisan seperti dalam Piagam Burra dan Venice. Menurut Ahmad (2006), kejayaan dalam setiap kerja-kerja pemuliharaan warisan adalah berdasarkan kepada prinsip-prinsip asas pemuliharaan warisan itu sendiri jika ianya dipatuhi. Sehubungan dengan itu, kerja-kerja pemuliharaan warisan perlu dijalankan dengan teknik dan

kaedah pemuliharaan yang betul. Ahmad (2006) juga mencadangkan empat prinsip utama yang perlu sentiasa diamalkan dalam kerja-kerja pemuliharaan di Malaysia iaitu:

1. Meminimakan Gangguan. Seperti yang terkandung dalam (Piagam Burra Artikel 3, 1979) menggariskan bahawa "....pemuliharaan merupakan kerja-kerja yang mengganggu bangunan dari segi kedudukan dan fabrik bangunan. Oleh itu sebarang gangguan untuk penyelidikan dan kerja awalan mestilah paling minima....".
2. Menjalankan kajian saintifik dan ujian makmal. Seperti yang terkandung dalam ICOMOS, Artikel 13, 1998 yang menggariskan "..pemuliharaan seharusnya berdasarkan penyelidikan dan penyiasatan fizikal dan sebaiknya ia bersifat tidak memusnahkan" dan Artikel 10 (e).. "..gangguan awalan seharusnya mendahulukan kerja-kerja adalah penyelidikan, penyiasatan dan merekod yang bersesuaian".
3. Mendokumentasikan kerja-kerja pemuliharaan. Ini terkandung dalam Artikel 10 (f), ICOMOS 1998 yang menggariskan .. "..rekod dan dokumentasi pemuliharaan seharusnya dijaga dan diselenggara termasuklah rekod bangunan atau tapak dalam arkib yang bersesuaian.."
4. Mengaplikasikan kaedah dan teknik yang terbukti berkesan. Dalam Fasal 4, Artikel 4.1 dan 4.2, Piagam Burra menggariskan bahawa "..pemuliharaan harus memanfaatkan seluruh ilmu pengetahuan, kemahiran dan disiplin yang dapat memberi sumbangan pada kajian dan pemuliharaan suatu tempat.." dan ".. bahan dan teknik tradisional lebih diutamakan bagi pemuliharaan bahan yang signifikan. Bagi keadaan tertentu, penggunaan teknik moden dan bahan yang hampir sama boleh disesuaikan…".

Umumnya terdapat tujuh (7) pendekatan yang digunakan bagi suatu program pemuliharaan, dan ianya boleh digabungkan bergantung kepada situasi dan keperluan dalam memenuhi objektif pemuliharaan tersebut iaitu pemeliharaan, pengekalan, pengembalian semula, penjagaan, pembangunan semula, pemulihan dan pengukuhan (Kamal & Ahmad 2007, Idid, 1996, Fielden 1982).

Dalam memulihara bangunan keagamaan khususnya seperti masjid, beberapa pendekatan diguna pakai bagi memanjangkan penggunaan bangunan ini kepada masyarakat Islam. Antaranya seperti pemeliharaan, pengekalan, penjagaan dan pengembalian semula. Projek pemuliharaan Masjid Tinggi Lama di Bagan Serai (gambar foto 1), Perak misalnya telah menjalani kerja-kerja pemulihan dan pemuliharaan dengan mengekalkan beberapa ciri-ciri penting seperti bahan binaan, reka bentuk bangunan dan lokasi. Manakala pemuliharaan Masjid Kampung Laut di Nilam Puri, Kelantan pula telah melalui kerja-kerja pengembalian semula setelah dipindahkan dari lokasi asalnya akibat ancaman bencana alam.

Dalam memulihara bangunan masjid ini, tidak semua pendekatan boleh diguna pakai dan ia bergantung pada justifikasi keadaan. Konsep pengembalian semula yang

Gambar foto (1): Masjid Tinggi Lama Bagan Serai dibina pada 1897, dan telah menjalani kerja pemuliharaan bangunan.

Gambar foto (2): Masjid Lama Kg. Mendun, Negeri Sembilan yang berusia hampir 100 tahun masih berdiri dengan binaan tambahan struktur yang boleh dibezakan dengan yang asal. Masjid ini dikatakan dibina pada tahun 1928 yang diasaskan oleh Tuan Hj Mohd Said B.Patun, salah seorang penduduk tetap dan ulama di kampung tersebut.

dirujuk dalam Artikel 1.7, Piagam Burra (1999) misalnya, ia bermaksud mengembalikan semula struktur yang sedia ada kepada keadaan asal seperti yang diketahui dengan membuang tambahan-tambahan atau memasang komponen atau elemen bangunan yang pernah terdapat tanpa menggunakan atau memperkenalkan sebarang bahan baru ke atasnya. Burden (2004), mendefinisikan pengembalian semula sebagai usaha untuk mendapatkan bentuk dan butiran secara tepat sesuatu benda sewaktu ia wujud melalui penanggalan atau penggantian bahan yang telah hilang dengan yang baru. Berbeza dengan keadaan masjid lama khususnya yang masih digunakan di mana penambahan-penambahan ruang dapat dilihat dengan jelas kerana konsep masjid adalah untuk menggalakkan kehadiran jemaah (lihat gambar foto 2). Struktur-struktur yang kebanyakannya adalah dalam bentuk kekal ini tidak digalakkan untuk diroboh mengikut konsep pengembalian semula kerana ia akan menjejaskan konsep sebuah masjid.

Namun, ia boleh digunakan jika terdapat justifikasi lain seperti adanya masjid baru yang dibina berdekatan atau ia tidak lagi digunakan.

Sebagaimana memulihara bangunan-bangunan lama yang lain, kaedah pembaikan dan penggantian terhadap elemen-elemen yang rosak dan hilang pada sebuah masjid perlulah menggunakan pendekatan yang bersesuaian. Misalnya penggunaan jenis kayu bagi menggantikan elemen yang telah rosak akibat pereputan yang serius, ia perlulah mengikut jenis kayu yang sama. Jika sukar didapati, penggunaan kayu yang mempunyai ciri dan kekuatan yang hampir sama boleh digunakan. Untuk elemen yang telah hilang pula, konsep pengembalian semula digunakan iaitu dengan menghasilkan semula dengan melakukan peniruan dari segi rekaan dan penggunaan bahan binaan. Ini bersesuaian dengan konsep pembinaan semula menurut Artikel 1.8, Piagam Burra (1999) iaitu dengan mengembalikan sesuatu itu sedekat yang mungkin kepada keadaan asalnya dan boleh dibezakan dengan menggunakan bahan-bahan lama dan baru. Menurut Burden (2004), pembinaan semula didefinisikan sebagai pembinaan baru terhadap apa yang telah hilang atau musnah, dalam bentuk keadaan yang asal dari segi bahan binaan dan perincian yang asli. Apa-apa penggantian terhadap elemen yang hilang atau mengalami keusangan yang teruk mestilah mampu kelihatan bersatu dan harmoni dengan keadaan keseluruhan dan boleh dibezakan antara bahan atau elemen yang asal dengan yang baru melalui satu pemeriksaan yang teliti.

Pemilihan teknik yang bersesuaian dalam pemuliharaan bangunan, berserta mengaplikasikan prinsip asas pemuliharaan adalah penting bagi menjayakan suatu kerja pemuliharaan. Kerja-kerja pemuliharaan amat menitik beratkan pengekalan keaslian suatu harta budaya tersebut.

4.0 Teknik Pembaikan Bangunan Kayu

Dalam mana-mana kerja bangunan, penggunaan teknik yang betul dapat memastikan suatu kerja itu dilakukan dengan tepat. Pemilihan teknik yang bersesuaian dalam pemuliharaan bangunan, berserta mengaplikasikan prinsip asas pemuliharaan adalah penting bagi menjayakan suatu kerja pemuliharaan. Kerja-kerja pemuliharaan amat menitik beratkan pengekalan keaslian suatu harta budaya tersebut. Dalam memenuhi kriteria ini, beberapa prinsip asas telah diwujudkan bagi memastikan gangguan atau kerja-kerja yang dijalankan dilakukan sebaik mungkin dan ini tidak semestinya tetap kerana ia bergantung pada keadaan-keadaan tertentu. Menurut Weaver (1999), antara prinsip kerja pembaikan kayu yang lazimnya digunakan adalah:

1. Cari dan buang/ hapuskan punca kerosakan. Menurut Ridout (2000), punca utama yang menyebabkan kerosakan pada kayu adalah kelembapan. Mana-mana bahagian yang terjejas teruk akibat kerosakan yang disebabkan oleh kehadiran kelembapan yang tinggi perlulah di cari puncanya. Bahagian-bahagian seperti kebocoran atap atau bumbung, talang air (gutter) dan ruang pengudaraan perlu dibaiki sama ada ditampal atau ditukar bergantung pada tahap kerosakan.
2. Kekalkan seberapa banyak kerja-kerja asli yang terdahulu.
3. Apabila membaiki atap bumbung dan lantai kayu di tingkat atas, perhatian diperlukan terutamanya pada bahagian bawah siling khususnya apabila terdapatnya kerja-kerja dekorasi seperti lepaan (plastering) pada tingkat bawah bangunan.
4. Kaedah meluruskan bahagian struktur yang bertukar bentuk (deformed) perlulah dilakukan dengan berhati-hati. Pada keadaan tertentu, struktur ini amat senang untuk patah, meregang dan akhirnya tidak boleh digunakan.
5. Pastikan kayu yang didedahkan adalah memang direka bentuk untuk didedahkan. Banyak kerosakan kemudiannya dikesan apabila cat pelindung, 'stucco' misalnya dibuang kerana tersilap tafsiran bahawa permukaan sebenar kayu adalah tanpa sebarang cat.

Selain sebagai panduan asas, pengamatan dan penggunaan prinsip ini dalam kerja pembaikan juga dapat memastikan bahawa suatu kerja pemuliharaan itu tidak tersasar dari matlamat sebenarnya. Dalam mana-mana kerja pemuliharaan dan pembaikan, gangguan yang minimum adalah penting, justeru itu tidak semua keadaan memerlukan penggantian bahan yang baru. Untuk pemuliharaan struktur kayu, empat jenis teknik yang lazimnya digunakan dan dalam suatu projek tidak semestinya menggunakan satu teknik malah boleh digabungkan mengikut kesesuaian yang dikehendaki.

Kaedah atau teknik bagi kerja-kerja restorasi dan pemuliharaan kayu ini boleh dibahagikan kepada beberapa jenis dan ianya sama ada penggunaan teknik penggantian, penggunaan teknik reinforcement mekanikal, pengukuhan dengan pengisitepuan (consolidation by impregnation) dan gabungan pengukuhan dengan reinforcement (consolidation and reinforcement) (Weaver, 1999; Ridout 2000 & Ashurt, 1989).

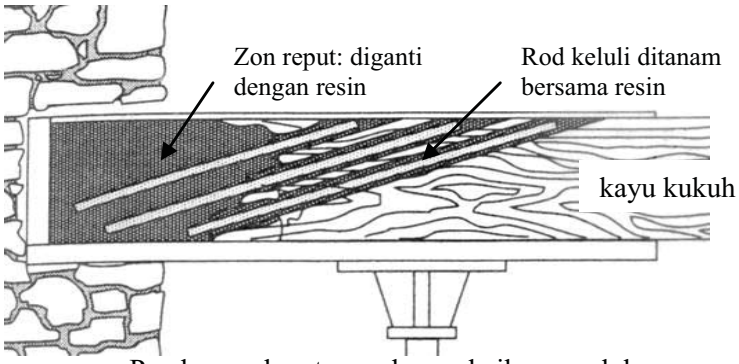
4.1 Penggantian Penuh dan Separa

Salah satu jenis teknik pembaikan bagi bangunan kayu adalah menggunakan konsep guna semula. Penggunaan semula struktur kayu dilakukan sama ada secara penuh atau

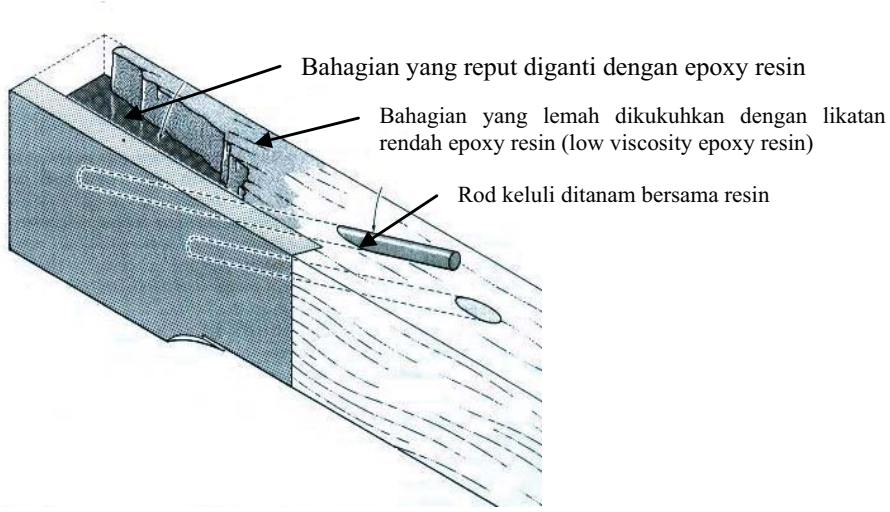
sebahagiannya. Jika kayu-kayu lama yang terdapat pada suatu bangunan itu berada dalam keadaan usang dan teruk kerosakannya, kerja-kerja baik pulih boleh dilakukan sama ada secara separa iaitu mengeluarkan bahagian yang rosak dan digantikan dengan yang baru atau penggantian keseluruhan anggota struktur dengan yang baru. Penggantian separa digunakan jika suatu struktur itu masih berada dalam keadaan yang baik dan hanya memerlukan pembaikan pada kawasan-kawasan yang tertentu sahaja. Bahagian yang rosak teruk akan dipotong dan digantikan dengan kayu baru. Manakala penggantian keseluruhan diaplikasikan apabila suatu struktur itu mengalami kegagalan yang agak serius. Penggantian separa ini akan memerlukan beberapa kaedah pemasangan dan sokongan yang betul bagi memastikan suatu struktur itu kembali berfungsi seperti yang dikehendaki. Kedua-dua penggantian ini perlulah melihat kepada beberapa aspek yang ditekankan dalam pemuliharaan bangunan. Kayu baru yang menggantikan kayu lama ini perlu sesuai sama ada dari segi jenis dan spesies kayu, kualitinya, warna dan arah ira bagi memastikan penggantian bahan baru ini harmoni dengan keadaan yang asalnya.

4.2 Sistem Mekanikal Reinforcement

Teknik ini adalah dengan mengembalikan penggunaan kayu melalui sistem penyambungan mekanikal. Bahagian kayu yang rosak akan digantikan dengan kayu baru dan dicantum pada bahagian kayu yang masih elok. Untuk memperkukuhkan cantuman ini, kaedah 'mekanikal reinforcement' digunakan. Umumnya ia dikenali dengan penggunaan sistem penyambungan 'bolt and nut', dowel (penetap), pegs (pacang) yang diperbuat daripada sama ada dari kayu, besi atau 'fibre glass reinforced plastik' untuk menguatkan bahagian struktur kayu tersebut. Sistem penyambungan kayu yang telah lemah boleh dibaiki atau diganti dengan penggunaan 'bracket angle iron', fishplates', 'stirrups' (rakap) dan 'hangers'.



Pandangan keratan pada pembaikan rasuk kayu



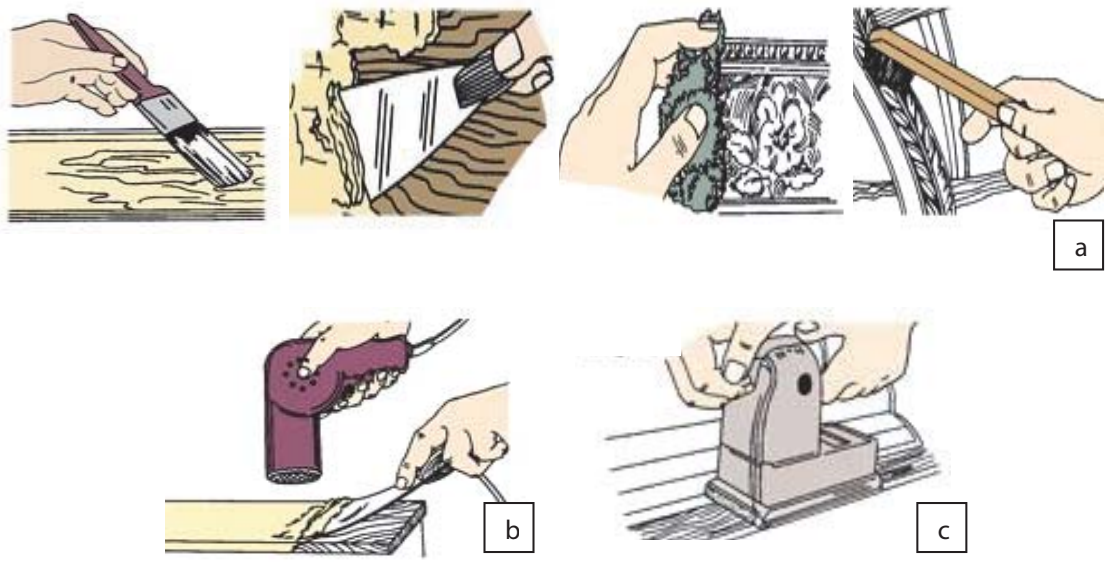
Gambar rajah 1: Kaedah WER (Wood Epoxy Reinforcement) dalam pembaikan rasuk kayu (Diubahsuai dari Weaver, 1999; Ashurt, 1989; Young & Philips, 2008; Johar & Ahmad, 2011)

4.3 Pengukuhan dengan Pengisitepuan

Penggunaan teknik ini adalah dengan menggunakan suntikan 'synthetic resin' bagi mengisi ruang-ruang yang repui untuk meneguhkan struktur yang rosak. Apabila kayu-kayu lama menjadi agak berserbuk atau repui akibat tindakan serangga, fungus dan kerosakan termal (terbakar), bahagian yang tinggal atau berlohong dicantum semula dengan kaedah 'impregnation' kayu dengan 'synthetic resin' dengan kelikatan rendah atau penggunaan 'molten wax'. Penggunaan 'synthetic resin' ini juga boleh digunakan dengan 'filler' bagi menyatukan kayu ketika terdapatnya ruang-ruang pemisah (gap). Cara penggunaan resin ini adalah dengan menggerudi kayu untuk dibuat lubang dan dimasukkan menggunakan picagari 'hypodermic' atau 'bulk loading guns'.

4.4 Pengukuhan dan Reinforcement

Lazimnya kaedah ini dikenali sebagai Sistem WER (Wood Epoxy Reinforcement) yang dihasilkan dari Canada (lihat gambar rajah 1). Menurut Weaver (1999) terdapat satu lagi sistem yang menggunakan konsep serupa yang dihasilkan dan digunakan di Belanda iaitu Sistem BETA. Dua kaedah ini menggunakan gabungan 'synthetic resin' dan keluli reinforcement untuk mengembalikan struktur kayu lama dan membolehkannya untuk menanggung beban semula. Penggunaan kaedah ini adalah dengan membuang bahagian yang mengalami kerosakan dan pereputan teruk. Untuk menggantikan bahagian ini, penggunaan epoxy mortar yang diperkukuhkan dengan penggunaan reinforcement dipasang dan



Gambar rajah 2: Kaedah pembuangan cat, (a) menggunakan sapuan 'paint remover sebelum dikikis; (b) menggunakan kaedah haba; (c) menggunakan alat 'sander' (Diubahsuai dari DoItYourself, 1995; Johar & Ahmad, 2011; Mustafa et al, 2011)

disambungkan kepada bahagian kayu lama yang masih elok. Penggunaan sistem ini diaplikasikan apabila kayu berada dalam tahap keusangan yang serius dan menggantikannya dengan kaedah lain akan menjejaskan konsep pemeliharaannya.

4.5 Pembuangan Lapisan Cat

Bangunan-bangunan kayu lama akan turut mengalami perubahan sebagaimana bangunan lama yang lain. Penggunaan bahan cat sebagai kemasan akhir banyak dikesan pada rumah-rumah, dan bangunan kayu di Malaysia. Penyingkiran bahan ini lazimnya dilakukan bagi mengembalikan semula warna asal kayu yang dikehendaki dalam suatu kerja pemuliharaan. Proses pembuangan cat dapat dilakukan dengan pelbagai cara dan setiap satunya mempunyai kelebihan dan kekurangannya tersendiri. Terdapat tiga cara yang lazimnya digunakan bagi membuang lapisan cat iaitu dengan penggunaan cecair penghilang cat (paint remover), teknik haba dan penggunaan alat penghalus (sander).

4.6 Pengawetan kayu dan Pengawalan Serangan Serangga

Pengawetan kayu selalunya digunakan bagi melindungi kayu-kayu yang senang diserang oleh agen biologi dengan kekuatan menahan serangan tersebut. Terdapat tiga jenis iaitu berasaskan minyak tar (coal-tar creosote); pelarut organik (Pentachlorophenol, Naphthenate, Tributyl tin oxide, Organo boron compounds, synthetic pyrethroids, gamma-hexachloro-cyclohexane); dan bahan yang larut dalam air (cooper, zink, chromium and arsenic, CCA). Umumnya yang paling lazim digunakan adalah copper, chromium arsenic salts (CCA) namun penggunaannya terhad pada struktur-struktur awam seperti jambatan dan tiang-tiang kayu (Hoadley (2000). Pada bangunan pula, bahan pengawet seperti cooper azole banyak digunakan bagi menggantikan penggunaan CCA.

Perkara yang ditekankan dalam pengawetan adalah penyerapan bahan pengawet ke dalam kayu. Bahagian yang menyerap bahan awetan ini adalah bahagian yang selalunya dilindungi. Justeru itu, pemilihan jenis kayu perlu dipertimbangkan sama ada mudah menyerap atau sebaliknya. Proses pengawetan dilakukan dalam dua cara iaitu menggunakan kaedah tekanan (pressure) ataupun tanpa tekanan (kaedah rendaman, celupan/ dipping, sapuan berus). Kaedah berusan atau celupan biasanya digunakan bagi melindungi dan mengawet permukaan kayu sahaja. Kaedah ini lazimnya tidak menghasilkan serapan bahan pengawetan yang dalam, tetapi tujuannya melindungi bahagian-bahagian yang terdedah dari serangan biologi. Kesalahan yang lazimnya dilakukan apabila menggunakan kaedah sapuan ini adalah mengaplikasikannya apabila struktur binaan itu telah dibina. Ia seharusnya diaplikasikan sebelum dibina terutamanya pada bahagian sambungan dan pada bahagian yang terdedah kepada risiko kelembapan. Bahagian-bahagian yang terdedah dengan hujan dan keadaan persekitaran luar, walaupun secara asasnya terdedah pada kelembapan, namun ia lebih cepat mengering kerana dengan adanya bantuan cahaya matahari dan pengudaraan. Ini berbeza dengan bahagian-bahagian yang terlindung seperti bahagian sambungan yang mana jika terdapatnya kelembapan, ia lambat untuk mengering. Justeru itu, mengaplikasikan bahan pengawetan ini perlulah dilakukan sebelum kayu ini digunakan dalam sambungan struktur kerana jika sapuan dilakukan selepas itu, amat sukar bagi memastikan sapuan yang rata dapat dicapai. Teknik sapuan tidak dapat bertahan lama terutamanya jika terdedah secara terus dan terhakis pada cuaca persekitaran. Justeru itu, kaedah pengawetan yang menjanjikan resapan mendalam bersama kaedah sapuan dapat membantu memanjangkan hayat penggunaan kayu dari serangan biologi ini.

Kerja-kerja pengawalan serangan serangga dan kulat tidak hanya tertumpu pada pengawetan kayu, malah ia perlu juga

Jadual 1: Penggunaan teknik pembaikan yang diaplikasikan dalam kerja pembaikan dan pemuliharaan masjid kayu lama di Malaysia

Nama Masjid Kayu Lama	Sistem Penggantian Penuh/ Sebahagian	Sistem Pengukuhan Mekanikal	Pengukuhan dengan Pengisitepuan	Pengukuhan dengan Reinforcement
Masjid Lama Mulong, Kelantan	✓	✓		
Masjid Lama Kg Kuala Dal, Kuala Kangsar	✓			
Masjid Lama Kg Jerang, Negeri Sembilan	✓	✓		
Masjid Lama Kg. Sungai Relai, Negeri Sembilan	✓			
Masjid Tinggi Lama, Bagan Serai	✓	✓		
Masjid Kg. Laut, Kelantan	✓		✓	

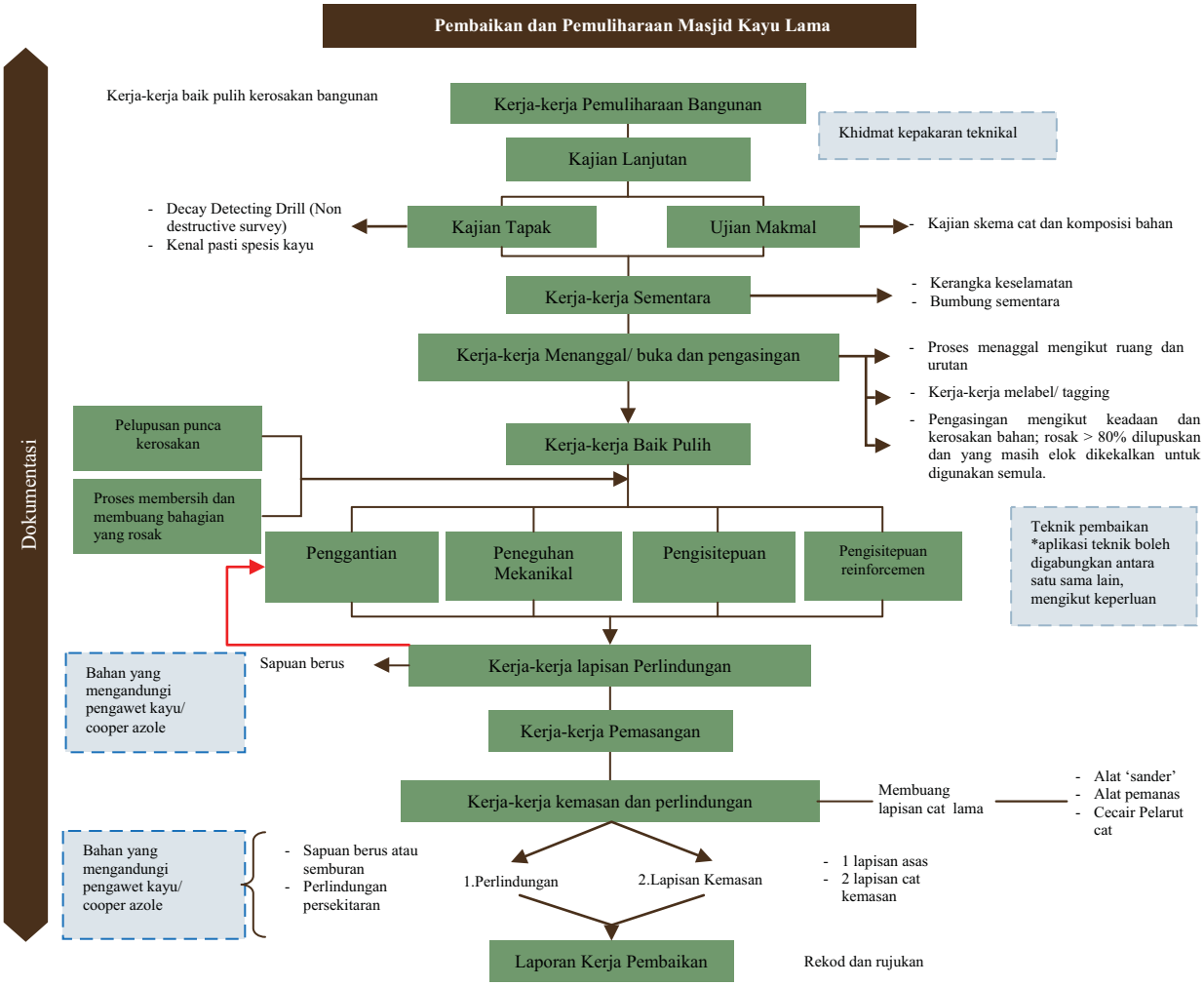
dilakukan pada persekitaran bangunan khususnya bagi menggalakkan serangan anai-anai. Penggunaan racun serangga yang digunakan sama ada diinjek dalam tanah, pada kayu atau blok umpan (repellant). Bagi serangga lain seperti kumbang, penggunaan racun serangga sama ada melalui teknik semburan, injek, kabus (fogging) adalah untuk mengurang dan membunuh kumbang dan larvanya yang berada di dalam kayu. Kayu yang telah disembur dengan bahan pengawet atau racun ini akan menyebabkan larva kumbang kurang berminat untuk menjadikan sap kayu sebagai makanan lalu akhirnya mati. Pemilihan teknik bagi kawalan serangga adalah bergantung pada keadaan kawasan tersebut misalnya teknik fogging sesuai bagi kawasan yang sukar dimasuki (Ridout, 2000).

5.0 Pembaikan Masjid Kayu Lama

Umumnya, tiada teknik khusus telah didokumenkan bagi pembaikan masjid-masjid lama. Ini adalah kerana, tidak semua kes-kes pemuliharaan itu sama malah pemilihan teknik bergantung pada beberapa perkara seperti kos, jenis pemuliharaan, keadaan dan tahap kerosakan serta sumber yang ada. Umumnya, teknik bagi membaiki masjid-masjid lama khususnya kayu telah menggunakan cara pembaikan bagi bangunan kayu lama yang lain.

Dalam membaiki dan mengembalikan fungsi suatu bangunan kayu khususnya masjid kayu lama, kaedah yang lazimnya dikesan adalah dengan menggunakan teknik penggantian sama ada penuh atau separa. Ini dapat dilihat pada kerja-kerja pembaikan terdahulu seperti pada Masjid Tinggi Lama, di Perak, masjid Kg Laut di Kelantan, Masjid Kg. Mendun di Negeri Sembilan, Masjid Kg. Tuan di Terengganu dan yang

Gambar foto 3: Kerja-kerja pembaikan dan pemuliharaan masjid kayu, (a) Kerja-kerja kemasan dalam pembaikan Masjid Lama Mulong, Kelantan (b) Proses kerja mengenal pasti warna cat asal, (c) Pembaikan Masjid Lama Kg. Jerang yang hampir siap (Johar, 2012)



Gambar rajah 3: Rangka kerja pembaikan kayu dalam amalan pemuliharaan bangunan (Diubahsuai dari Johar, 2012)

terbaru Masjid Lama Mulong di Kelantan (gambar foto 3). Selain itu terdapat juga teknik khusus yang mula diguna pakai iaitu mengaplikasikan penggunaan teknik pengukuhan secara mekanikal bagi mengukuhkan struktur kayu terutamanya pada bahagian sambungan.

Penggunaan teknik yang lebih bersifat kejuruteraan (engineered) seperti pengukuhan pengisitepuan dan pengukuhan reinforcement kebanyakannya tidak diaplikasikan dalam aktiviti pemuliharaan bangunan kayu di Malaysia. Penggunaan teknik ini memerlukan kepakaran dan penggunaan bahan tertentu serta boleh melibatkan kos yang tinggi. Suatu struktur kayu yang menjalani proses ini perlulah sangat bernilai dimana kehilangan atau penggantiannya dengan bahan yang lain boleh menjejaskan ciri dan nilai signifikan pada bangunan tersebut. Pemilihan teknik konvensional lebih mudah digunakan disamping murah kerana tidak memerlukan kepakaran tertentu, namun penggunaan teknik ini tidak banyak dapat mengekalkan keaslian binaan tersebut. Dalam setiap bangunan kayu, termasuk juga pada bangunan masjid, penggunaan bahan pengawet kayu amat penting bagi memanjangkan penggunaan bahan binaan ini dalam alam binaan. Pemilihan kayu dalam kerja-kerja pembaikan haruslah mempertimbangkan penggunaan kayu yang telah diawet untuk mengelakkan kecacatan bangunan pada jangka waktu yang singkat terutama pada bahagian yang mudah terdedah pada agen pereputan. Penggunaan sapuan lapisan pelindung bukan hanya memelihara bangunan kayu dari cepat mereput malah dapat mengekalkan ciri-ciri estetik kayu sebagai bahan binaan semula jadi. Tata cara pembaikan kayu ini dapat dirujuk melalui gambar rajah 3 yang telah diringkaskan (tata cara ini boleh berubah mengikut keperluan pembaikan bahan binaan kayu tersebut).

6.0 Kesimpulan

Dalam memastikan suatu kerja pemuliharaan itu dijalankan sebaiknya, pemilihan teknik yang sesuai perlu dipertimbangkan. Pemahaman terhadap kerosakan dan faktor kecacatan bangunan adalah penting diketahui dalam mana-mana kerja pemuliharaan. Berdasarkan itu, beberapa teknik pembaikan bagi bangunan berunsurkan kayu telah dihasilkan selain untuk memastikan penggunaan kayu dapat terus dilanjutkan. Pemahaman dalam penggunaan teknik bagi kerja pembaikan adalah penting bagi memastikan suatu kerja pembaikan itu dijalankan dengan sempurna, dapat mengurangkan risiko kerosakan lanjutan dan dapat memenuhi tuntutan suatu kerja pemuliharaan.

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Empirical Study of the

Impact of Revitalise Old Industrial Buildings on Property Prices

The Case of Hong Kong

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Hong Kong's economy has undergone a remarkable transformation in the past three decades. The most visible phenomenon in this transformation is the relocation of traditional manufacturing activities to China since the 90's. This has led many of the old industrial buildings under-utilised and dilapidated. The HKSAR Government launched the "Revitalising Industrial Buildings Policy" in order to revitalise these under-utilised properties with the aim to provide suitable land and premises to meet the local economic and social needs. Yet, as suggested in the literature, there is no evidence of positive development externalities reflected in improved real estate values for surrounding properties. However, there are only a few empirical studies that have been carried out in Hong Kong to investigate how revitalisation affects residential property prices in a neighbourhood. In this light, this study explores the relationships between the revitalisation of old industrial buildings and the market value of the neighbourhood residential properties, with a case study in Kwun Tong. A set of panel data is employed and price differentiation at different revitalisation stages is explored. The findings suggest that revitalisation did not originate a net positive price effect on neighbourhoods' residential properties which is in line with findings of the previous studies. The study also finds that negative externalities generated by the revitalisation during and post-revitalisation stages are almost similar in magnitudes. However, the wholesale conversion mode and small scale revitalisation have less negative impacts on the prices.

1. INTRODUCTION

THE CHANGE OF ECONOMIC STRUCTURE in Hong Kong has significant impacts to the local industrial buildings. In the past decades, Hong Kong economic structure has gradually changed from manufacturing base to services base. In 2010, the manufacturing sector only contributes 1.7% to the Gross Domestic Product (GDP), whereas the services sector contributes 93% to the GDP (Census and Statistics Department, 2012). As a result of Hong Kong's economic reconstructing and relocation of traditional manufacturing activities to the Mainland, many of the industrial buildings are vacant or under-utilised (Development Bureau, 2010). According to the report from the Rating and Valuation Department (2012), there is 6% vacancy rate for private flatted factories at the end of 2011. This data suggested that there are about 1 million square metre of floor area that is under-utilised. Also, the old industrial buildings are usually considered in undesirable conditions and hamper the pace of urban renewal.

In view of this, the Government tried to widen permissible uses in industrial buildings by rezoning suitable existing industrial land from "Industrial" ("I") to "Other Specified Uses (Business)" ("OU(B)") zones as early as 2001 in order to encourage the revitalisation of old industrial buildings.

Recently, the Government launched the "Revitalising Industrial Buildings Policy" (the Policy) to further promote the revitalisation of factory buildings (The Government of the Hong Kong Special Administrative Region, 2009). The policy provides measures to encourage redevelopment in non-industrial zones and wholesale conversion in "industrial", "other specified uses (business)" ("OU(B)") and "commercial" zones (Development Bureau, 2010). Refinements are introduced after the mid-term review.

As a result, the revitalisation potential is very high and it is foreseeable that the districts with plenty of old industrial buildings, such as Kwun Tong would be changed dramatically in the future if the Government can increase the owners' or developers' incentive to carry out the revitalisation of industrial buildings.

The objective of the policy is to provide suitable land and premises to meet Hong Kong's economic and social needs. In other words, the aim of this policy is to create positive externalities to the society by transforming the old dilapidated industrial building into a modern sustainable building. However, building revitalisation may also bring several problems to the society, such as wall effect, reduction of openness and increase the burden of nearby mass transport system. These problems would cause negative externalities to the society. Since the market value of the neighbourhood residential properties can reflect the impact of the externalities produced by the revitalisations, this study aims to analyse the relationships between the revitalisation of old industrial buildings and the market value of the neighbourhood residential properties.

2. LITERATURE REVIEW

2.1 Components affecting residential property prices

There are a number of researches studying the different combinations of property attributes on variation in residential property prices. The determinants of dwelling prices are grouped into the three categories, namely location, structural and neighbourhood variables (Can, 1990). By urban economic theory, location variables enter the price determination equation of dwelling values because residents living far away from Central Business District incur higher transportation costs and should be compensated by lower land and housing prices in order to maintain spatial equilibrium. Neighbourhood variables are also capitalised into property values through the amenity effect. Can (1990) shows that the effects of structural housing attributes are equally important within the broad housing market is incorrect, and that the influence of structural attributes on prices is characterised by spatial variability. Since the effect of structural attributes on price may vary depending on location, neighbourhood attributes may also depend largely upon other neighbourhood factors. More generally, potential endogeneity of these effects at the neighbourhood level can affect the pricing behaviour of owners of existing units, as well as builders of new ones, and thereby are the result of, and lead to further, the process of neighbourhood change (Rothenberg et al., 1991).

2.2 Impact of building revitalisation to the value of neighbourhood properties

The definition of building revitalisation may vary from place to place. According to the 2009-10 Policy Address, the revitalisation of older industrial buildings is promoted by redevelopment and wholesale conversion of vacant or under-utilised industrial buildings (The Government of the Hong Kong Special Administrative Region, 2009).

Locally, there has been little empirical evidence on the impact of building revitalisation to the value of neighbourhood properties. Chau et al. (2004) and Lai et al. (2007) investigated how two comprehensive redevelopment projects altered the spatial-price gradients of the residential properties in their neighbourhood, but the findings did not suggest that comprehensive redevelopment projects create a net positive price effect on the residential properties in their vicinity. Recently, Yau (2011) discovered that the proximity to the project site had a significant positive impact on housing prices before the comprehensive redevelopment, but no change was identified in the spatial-price gradient after completion of the development. The results confirm Chau et al. (2004) and Lai et al. (2007) studies that housing prices do not respond to the change in the environmental quality resulting from comprehensive redevelopment.

In the overseas perspective, empirical studies suggest that the effect of the concentration of a large number of new dwellings on the value of neighbourhood properties is present and restricted geographically (Segal, 1977; Varady, 1986). This implies that the geographic impact of most new development is expected to be limited (DeSalvo, 1974; Quigley, 1982; and Varady 1986). In the late 90's, Simons et al. (1998) demonstrate that new housing development has a significant positive effect on the neighbourhood properties values. The study found that there is a substantial positive effect of US$670 on the sales price of exiting units for each new housing construction within one to two blocks. However, rehabilitation was discovered to have a negative effect on the sales price of exiting units. Ding et al. (2000) extends Simons et al. (1998) works by analysing the effect of both new and rehabilitation residential investment on neighbourhood properties values in Cleveland. They concluded with four findings. First, the effect of investment on property values is geographically limited. Second, new investment has a greater impact on neighbourhood property values than rehabilitation. Third, the evidence shows that new construction and rehabilitation has a substantial positive impact in low-income areas and predominantly non-minority neighbourhoods. Last but not least, it suggests that neighbourhood property values has not affected by small-scale investment. Weber et al. (2007) studies the spillover effects caused by the creation of Tax Increment Financing (TIF) districts in the Chicago. Mixed-Use developments generate price enhancement, proximity to industrial TIF districts reduces home price enhancement, and proximity to commercial districts had little or no measurable effect on price enhancement (Weber et al., 2007). Rossi-Hansberg et al., (2010), used data compiled from concentrated residential urban revitalisation programmes implemented in Richmond to study residential externalities. Within the targeted neighbourhoods, increases in land value are consistent with externalities that fall exponentially with distance. Newell (2010) recently established that there is no evidence of positive development externalities reflected in improved real estate values for surrounding properties, which challenges many of the arguments used to champion urban revitalisation initiatives.

In 1950s, the Hong Kong Government decided to develop Kwun Tong into a major industrial area. Residential buildings were developed together with the industrial area, due to the high demand for housing

3. METHODOLOGY AND DATA DESCRIPTION

3.1 Case study in Kwun Tong

In 1950s, the Hong Kong Government decided to develop Kwun Tong into a major industrial area. Residential buildings were developed together with the industrial area, due to the high demand for housing. As mentioned before, the production lines of varies industries were migrated to Mainland China from time-to-time. Nowadays, the industrial buildings in Kwun Tong were fading out and left vacant, many of these buildings were undergoing revitalisation.

Table 1: Summary of the revitalisation projects

	Under the Policy		NOT under the Policy
	United Overseas Plaza	Rykadan Capital Tower	Crocodile Center
Location	No. 11 Lai Yip Street	No. 135 Hoi Bun Road	No.79 Hoi Yuen Road
Execution Date	18th February 2010	26th September 2011	16th January 2006
Completion Date	December 2010	Under construction	November 2009
Total GFA	96,126ft^2	207,000ft^2	230,000ft^2
No. of Storey	11	25	25
User	Office	Non-Residential	Shop and Services & Office
Development Model	Wholesale conversion	Redevelopment	Redevelopment
Former Building	United Overseas Industrial Building	Elite Industrial Centre	Crocodile Garment Factory
Former User	Industrial	Industrial	Industrial

At the end of 2012, there were 28 special waiver (wholesale conversion) cases and two lease modification (redevelopment) cases executed, while more than half of the special waiver cases were located in Kwun Tong Inland Lot since the implementation of the Policy in April 2010 (Development Bureau, 2010). The residential property prices in this district rose over 100% from April 2009 to January 2013, which was 20% ahead of the average growth rate in Hong Kong (Midland Realty, 2013). Therefore, it created suspicions of whether such a strong growth rate from the first quarter of 2011 in Kwun Tong was attributable to the successful applications of revitalising old industrial building within the neighbourhood. As a result, the unique characteristic and development history in Kwun Tong provided a platform for this study to be carried out.

3.2 Background of the targeted projects

Three different revitalisation projects in Kwun Tong are chosen for this study namely, United Overseas Plaza (UOP), Rykadan Capital Tower (RCT) and Crocodile Center (CC). There are several reasons of adopting these projects. Firstly, UOP is the first wholesale conversion case under the Policy. Secondly, RCT is the only redevelopment case under the Policy in Kwun Tong. Thirdly, CC is one of the recent redevelopment projects not developed under the Policy. Lastly, the locations of these buildings are not far away from the nearby residential properties. The particulars of these projects are summarised in Table 1.

3.3 Hedonic Price Model

This study selects Kwun Tong as a case study due to its characteristics and it is facing a huge transformation in terms of the building use nowadays. So, the Hedonic Price Model (HPM) will be applied in this district to explore the relationships between the market value of the residential properties and the residential properties' attributes including the impacts of revitalisation of old industrial buildings in different stages of time and other attributes.

The combination of double-log and log-linear functional form will be adopted in this study because a constant elasticity can be met by the double-log functional form, while the log-linear functional form can encounter the problem of the dummy variable. Since, it is not able to be logged if the dummy variable has the value of zero. Real transaction price is used instead of nominal price to control for the possible effects of time. So, the nominal prices are deflated by the domestic property price index compiled by the Rating and Valuation Department in Hong Kong. The common variables including, AGE_{it}, $FLOOR_i$, $AREA_i$, PM_i, MTR_i and BS_i are incorporated into the model to control price variation due to these structural and locational attributes.

The following is the hypothetical equation of the Hedonic Price Model adopted in this study:

$$\ln RP_{it} = \alpha_0 + \alpha_1 \ln AGE_{it} + \alpha_2 \ln FLOOR_i + \alpha_3 \ln AREA_i + \alpha_4 PM_i + \alpha_5 \ln MTR_i + \alpha_6 BS_i + \alpha_7 \ln UOP_i + \alpha_8 \ln RCT_i + \alpha_9 \ln CC_i + \alpha_{10} \ln UOP_i \times DURING\_UOP_i + \alpha_{11} \ln RCT_i \times DURING\_RCT_i + \alpha_{12} \ln CC_i \times DURING\_CC_i + \alpha_{13} \ln UOP_i \times AFTER\_UOP_i + \alpha_{14} \ln CC_i \times AFTER\_CC_i + \varepsilon_i$$

Where $\mathbf{RP_{it}}$ is the real transaction price of property i at time t (measured in million HKD); $\mathbf{AGE_{it}}$ is the age of property i, which equals the difference between the date of the issue of the occupation permit and the date of the transaction t (measured in months); $\mathbf{FLOOR_i}$ is the floor level of property i; $\mathbf{AREA_i}$ is the saleable floor area of property i (measured in sq. ft.); $\mathbf{PM_i}$ is a dummy variable which equals 1 if there is a property management company serving the building in which the property i is located and 0 if otherwise; $\mathbf{MTR_i}$ is the minimum walking time (measured in minutes) between property i and the nearest Mass Transit Railway (MTR) stations; $\mathbf{BS_i}$ is a dummy variable which equal to 1 if there is one or more Bus stop(s) located within one minute walking time from the property i and 0 if otherwise; $\mathbf{UOP_i}$ is the displacement between property i and the centre of United Overseas Plaza (UOP) (measured in metres); $\mathbf{RCT_i}$ is the displacement between property i and the centre of Rykadan Capital Tower (RCT) (measured in metres); $\mathbf{CC_i}$ is the displacement between property i and the centre of Crocodile Center (CC) (measured in metres); $\mathbf{UOP_i \times DURING\_UOP_i}$ is an interaction variable which measure the displacement between property i and the centre of UOP (measured in metres) and the transaction time of property i (during revitalisation stage of UOP); and it amounts to 0 for any other stages; $\mathbf{RCT_i \times DURING\_RCT_i}$ is an interaction variable which measure the displacement between property i and the centre of RCT (measured in metres) and the transaction time of property i (during revitalisation stage of RCT); and it amounts to 0 for any other stages; $\mathbf{CC_i \times DURING\_CC_i}$ is an interaction variable which measure the displacement between property i and the centre of CC (measured in metres) and the transaction time of property i (during revitalisation stage of CC); and it amounts to 0 for any other stages; $\mathbf{UOP_i \times AFTER\_UOP_i}$ is an interaction variable which measure the displacement between property i and the

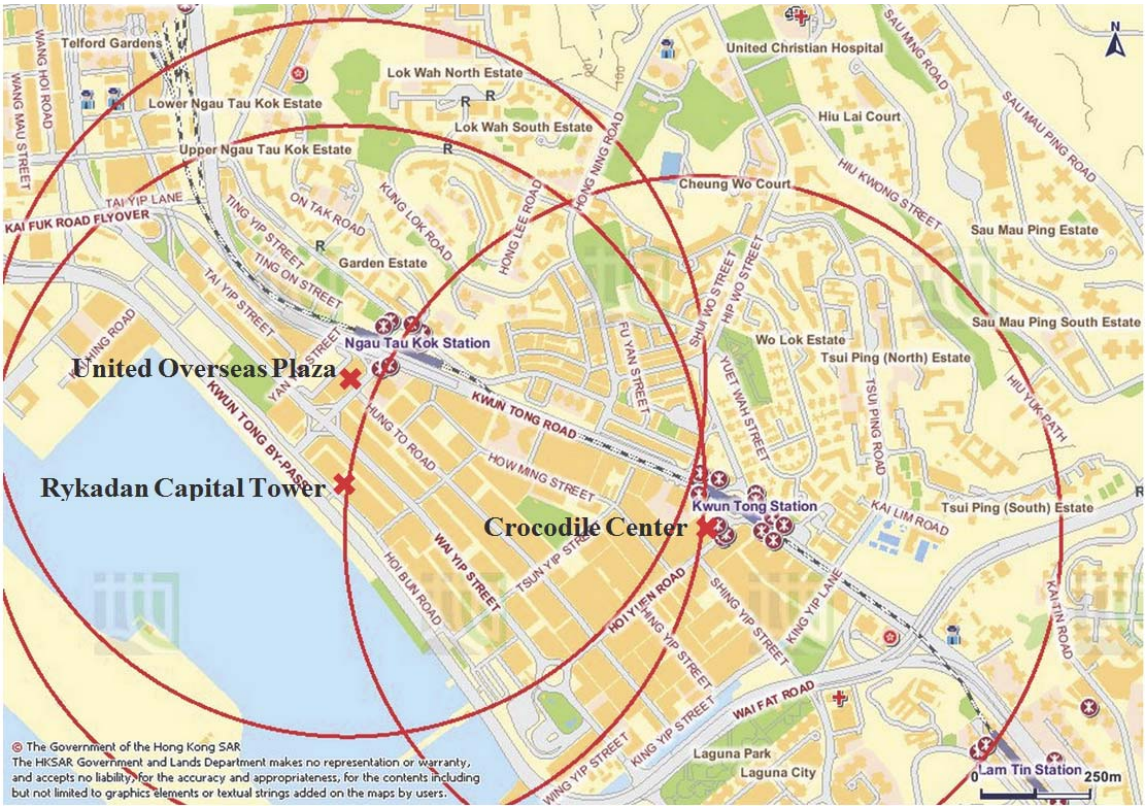

Figure 1: Study area (750m) from the centre of the revitalisation projects (Lands Department, 2012)

Table 2: Descriptive statistics of the property transaction data

Variable	Mean	σ	Min.	Max.
Real transaction price (million HKD)	1.4878	1.1780	0.0849	57.7997
Age (months)	443.2772	106.8933	97.0000	594.0000
Floor level	7.6294	5.5447	1.0000	29.0000
Saleable floor area (sq. ft.)	427.6618	145.7315	185.0000	3215.0000
Present of property management company	0.9362	0.2444	0.0000	1.0000
Minimum walking time to the nearest MTR stations (minutes)	5.4506	2.3951	1.0000	11.0000
Accessibility to bus stop	0.6635	0.4726	0.0000	1.0000
Displacement to the centre of UOP	742.0262	230.5711	310.0000	1126.0000
Displacement to the centre of RCT	815.4042	197.5075	493.0000	1133.0000
Displacement to the centre of CC	455.5572	146.5621	180.0000	983.0000
Interaction of displacement and transaction time of UOP (during revitalisation stage)	70.9387	226.8341	0.0000	1126.0000
Interaction of displacement and transaction time of RCT (during revitalisation stage)	75.1656	243.5757	0.0000	1133.0000
Interaction of displacement and transaction time of CC (during revitalisation stage)	218.6012	244.1508	0.0000	983.0000
Interaction of displacement and transaction time of UOP (post-revitalisation stage)	117.9758	285.4903	0.0000	1126.0000
Interaction of displacement and transaction time of CC (post-revitalisation stage)	99.0458	204.5226	0.0000	983.0000

centre of UOP (measured in metres) and the transaction time of property i (post-revitalisation stage of UOP); and it amounts to 0 for any other stages; $CC_i \times AFTER\_CC_i$ is an interaction variable which measure the displacement between property i and the centre of CC (measured in metres) and the transaction time of property i (post-revitalisation stage of CC); and it amounts to 0 for any other stages; α_i is the coefficients to be estimated and ; ε_i is the stochastic term.

The transaction data for the residential properties within 750 metre from the centre of the revitalisation projects is as shown in Figure 1 were obtained. Two years before "during revitalisation" stage will be considered as the pre-revitalisation stage. While, "during revitalisation" stage is defined as the construction or renovation period of the target projects. Regarding the post-revitalisation stage, it is considered as two years after the "during revitalisation" stage. Therefore, all the transaction records within the period of 16th January 2004 to 31st December 2012 were obtained from the Economic Property Research Centre. The summary statistics of the data are presented in Table 2.

4. EMPIRICAL RESULTS AND ANALYSIS

4.1 Results

The results of the HPM are shown in the Table 3. The adjusted R-squared of this model is 0.6711 which is an acceptable value and the F-Test result is highly significance. Also, there are only one coefficient is found to be statistically insignificant.

In general, the findings suggest that most of the common variables are shown to be significant at 1% level except for

Table 3: Regression results for the hedonic price model

Independent Variable	Unstandardised Coefficient	Std. Error	*t*-statistic	*p*-value	VIF
CONSTANT	-3.9102	0.3353	-11.6630	0.0000	-
LN_AGE	-0.4709***	0.0226	-20.7919	0.0000	2.3832
LN_FLOOR	0.0538***	0.0062	8.6244	0.0000	1.2178
LN_AREA	1.0889***	0.0181	60.0605	0.0000	1.4049
PM	0.1491***	0.0197	7.5698	0.0000	1.1288
LN_MTR	-0.0629***	0.0217	-2.8965	0.0038	5.6700
BS	0.0396**	0.0162	2.4417	0.0147	2.8623
LN_UOP	-0.3835***	0.1070	-3.5827	0.0003	62.4671
LN_RCT	0.5741***	0.1323	4.3410	0.0000	53.7308
LN_CC	-0.2042***	0.0446	-4.5779	0.0000	10.4389
*LN_UOP*DURING_UOP*	0.0167***	0.0041	4.0985	0.0000	3.0586
*LN_RCT*DURING _RCT*	0.0276***	0.0045	6.0822	0.0000	3.7512
*LN_CC*DURING_CC*	0.0473***	0.0020	24.0558	0.0000	1.7299
*LN_UOP*AFTER_UOP*	0.0072*	0.0041	1.7474	0.0806	4.8351
*LN_CC*AFTER_ CC*	0.0530***	0.0040	13.3948	0.0000	4.7317
Adjusted R-squared	0.6711	Durbin-Watson		1.3938	
F-statistic	585.9381	Number of observations		4015	
Prob (F-statistic)	0.0000				

Note: (***), (**) and (*) denote that the estimated coefficients of the variables are significant at the 1%, 5% and 10% level respectively.

the accessibility to the bus stop which is significant at 5% level. Also, all common variables are matched with the expected sign. The results reveal that residential property prices are negatively linked to building age and the minimum walking time to the nearest MTR station, while positively related to the floor level, saleable floor area, the presence of property management in serving the building and the presence of bus stop(s) within one minute working time to the building.

For the variables regarding the impacts of revitalisation, the findings indicated that most of them are shown to be significant at 1% level except for the interaction term *LN_UOP*AFTER_UOP* which is significant at 10% level. Thus, there is a significant relationship between these variables and the residential property prices except for that interaction term.

Regarding the signs and degree of the coefficients, the results indicated that in pre-revitalisation stage, there is 1% increase in displacement between the property and United Overseas Industrial Building (former development of United Overseas Plaza) or Crocodile Garment Factory (former development of Crocodile Center) could cause 0.3835% or 0.2042% decrease in property prices respectively, while 1% increase in displacement between the property and the displacement of the Elite Industrial Centre (former development of Rykadan Capital Tower) could induce 0.5741% increase in property prices. For the "during revitalisation" stage, the results returned that 1% increase in displacement between the property and United Overseas Plaza, Rykadan Capital Tower or the Crocodile Center could induce 0.0167%, 0.0276% or 0.0473% increase in property prices respectively. Concerning the post-revitalisation stage, the results suggested that 1% increase in displacement between the property and the Crocodile Center could induce 0.0530% increase in property prices.

For the overall price changes caused by the revitalisation projects, the price gradient of United Overseas Plaza and Crocodile Center followed the same trend. Both of them are negative value on the pre-revitalisation stage and then remain in slightly positive value in during and post-revitalisation stages. Although, both of the projects have the same trend, the United Overseas Plaza always has the smaller value compare with the Crocodile Center. Regarding the Rykadan Capital Tower, it has a relatively high positive value at the beginning stage and then falls down to slightly positive value on "during revitalisation" stage.

4.2 Analysis

4.2.1. Pre-revitalisation stage

The negative coefficients of *LN_UOP* and *LN_CC* appear to contradict the perception that proximity to an old industrial building should result in a discount in property prices due to the negative externalities. On the other hand, the positive coefficient of *LN_RCT* proves that this intuition is correct. The possible explanation for this situation is that the negative externalities were outweighed by the higher levels of convenience and accessibility of the sites. Since, the project sites for the United Overseas Industrial Building and Crocodile Garment Factory were located near the MTR stations namely, the Ngau Tau Kok station and Kwun Tong station, while the Elite Industrial Centre is not. A similar result was generated in the previous study about the development of Langham Place complex in Mong Kok (Yau, 2011). Therefore, the positive value returned only in the coefficient of *LN_RCT* and it indicated that the residents in Kwun Tong District tend to purchase a residential property away from the industrial buildings. This is likely because of the unpleasant views and air pollution problem of the old industrial buildings.

The findings also suggest that among the degree of negative coefficients, the negative externalities of the Crocodile Garment Factory are higher than the United Overseas Industrial Building. One of the possible causes is that the development scale of the Crocodile Garment Factory (two blocks) is much higher than the United Overseas Industrial Building (single building). With the greater development scale, the opportunities to create unpleasant views and air pollution are higher.

4.2.2. During revitalisation stage

The positive coefficients are consisting (consistent?) with the notion that proximity to a conversion or redevelopment site should result in a discount in property prices because of negative externalities. These negative environmental impacts include air pollution created by the construction or renovation, noise pollution generated during the process as well as traffic jams induced by the trucks which affect the accessibility. Thus, the residents in Kwun Tong District wish to buy a residential property away from the conversion or redevelopment sites.

In addition, the *LN_CC*DURING_CC* has the greatest negative externalities to the neighbourhood, while the *LN_UOP*DURING_UOP* has the lowest. The possible explanations are related to the mode and the scale of revitalisation. When considering the mode of revitalisation, only the United Overseas Plaza has undergone the wholesale conversion process, but the rest of the targeted projects were redevelopment. It shows that the wholesale conversion mode creates less negative externalities compared with the redevelopment mode, since conversion of a building does not involve the demolition process, the negative impact from this process can be eliminated. In other words, the nuisances to the residents in Kwun Tong District are less compared in the conversion mode with the redevelopment mode.

Usually, in large scales of revitalisation, the number of the construction activities would increase and consequently, aggravate the negative environmental impacts that were mentioned

Regarding the scale of revitalisation, the Crocodile Center has about 230,000 ft2 in Gross Floor Area, while the Rykadan Capital Tower and the United Overseas Plaza only have about 207,000 ft2 and 96,126 ft2 in Gross Floor Area, respectively. It shows that the greater the scale of revitalisation, the greater is the negative externalities generated. Usually, in large scales of revitalisation, the number of the construction activities would increase and consequently, aggravate the negative environmental impacts that were mentioned.

4.2.3. Post-revitalisation stage

The coefficient of *LN_CC*AFTER_CC* has the positive sign which suggest that the proximity to a post-revitalisation site result in a discount in property prices because of negative externalities. In theory, the transformation of an old dilapidated industrial building into a modern sustainable building should create some positive externalities to the neighbourhood. Nevertheless, this study indicates that the insignificant positive externalities created by the Crocodile Center counter balance the negative externalities. Although the Crocodile Center has a distinctive architectural style as well as a comprehensive shopping mall, the captivating outlook and facilities still cannot provide a great enhancement in positive externalities to the neighbourhood and this is likely owing to the negative environmental impacts generated by this modern building. Originally, the highest block in Crocodile Garment Factory was 10-storey only, but now, the Crocodile Center has 25-storey. This gigantic change in building height seriously affects the openness of view and ventilation issues in the neighbourhood residential buildings. In fact, some of the old industrial buildings are still undergoing industrial business, the air pollutants from these buildings and vehicles might not be dispersed easily because of the wall-effect of this building. Also, there are not enough green features or open spaces provided by this building. Therefore, the residents might suffer from serious air pollution problem due to the blockage of breezeways by the Crocodile Center. As a result, this is reflected in the neighbourhood property market and it counters the positive benefits generated by this revitalisation project.

4.2.4. The overall impact of revitalisation projects on residential property prices

The results of this study confirm previous findings (Chau et al., 2004; Lai et al., 2007 and Yau, 2011) that Hong Kong revitalisation projects did not originate a net positive price effect on neighbourhoods residential properties, assuming that all other factors are constant. The findings in this study suggest that there are negative externalities generated by the revitalisation projects throughout the stages of revitalisation and the magnitudes are almost similar in the period during and of post-revitalisation stage.

In addition, a noteworthy point is that the mode and scale of the revitalisation projects in different stages of revitalisation have a certain impacts on the neighbourhood residential property prices. It seems that the wholesale conversion have less negative impacts on property prices compare with redevelopment, while the higher the scale of revitalisation, the greater is the negative impacts on the property prices.

Furthermore, this study suggested that the revitalisation projects which are conducted under the Policy and those are not share the similar impacts on the neighbourhood residential properties prices in the during revitalisation stage. When considering the construction method, the Rykadan Capital Tower is not likely to be constructed in a sustainable way and the Policy does not require Crocodile Center to have a sustainable construction. Consequently, the similar value in during revitalisation stage is likely due the scale of development as mentioned before but not the effect of the Policy.

5. CONCLUSION AND RECOMMENDATION

Revitalise old industrial buildings is an approach to provide readily available and suitable land and premises by regenerate and maximise the development potential of the old dilapidated industrial buildings through wholesale conversion and redevelopment in order to improve the built environment, catch the Hong Kong's economic needs and enhance social benefits. To test this hypothesis, a Hedonic Price Model was constructed with a set of transaction data for residential properties in the Kwun Tong District.

The effect of the common property attributes are confirmed in the study. Also, it examined that revitalisation projects did not originate a net positive price effect on neighbourhoods' residential properties, provided that all other factors being constant. The projects which are conducted under the "Revitalising Industrial Buildings Policy" have the similar impact on the neighbourhood residential properties prices with the project which is not under the Policy in the during revitalisation stage. The mode and scale of

...the policy maker should encourage more wholesale conversion revitalisations within the society and also give some incentives in providing green features in the revitalisation, so the negative externalities could be reduced or even disappear

the revitalisation projects in different stages of revitalisation have a certain impacts on the neighbourhood residential property prices. It seems that the wholesale conversion have less negative impacts on property prices compare with redevelopment, while the higher the scale of revitalisation, the greater is the negative impacts on the property prices. Furthermore, there are negative externalities generated by the revitalisation projects throughout the stages of revitalisation and the degree of negative externalities is similar in the period of during and post-revitalisation stage.

The reason of the revitalisation projects did not originate a net positive price effect on neighbourhoods' residential properties is likely contributed to the negative environmental impact of the new development. Therefore, this study provides some evident or suggestions to the policy maker that the Government should have a better control in the urban planning in order to reduce the negative environmental impact generated by the revitalisation projects, which contradicted with the propose of the Policy. In addition, this study provides the evident that wholesale conversion mode of revitalisation induce less negative impact to the neighbourhood compare with the redevelopment mode. Therefore, the policy maker should encourage more wholesale conversion revitalisations within the society and also give some incentives in providing green features in the revitalisation, so the negative externalities could be reduced or even disappear.

Since the Rykadan Capital Tower is still under construction during this study, further studies are suggested to confirm the results. Also, according to the Outline Zoning Plan of Kwun Tong (South) approved by Town Planning Board (2012), as there are number of permitted usages stated in

the Schedule of Uses, such as hotel, the impacts of type of revitalised buildings on the neighbourhood residential property market would be worth studied in the future when these revitalisations are completed. In addition, further study could address the influence of revitalisation on the neighbourhood residential property market in terms of distance. Last but not least, the usefulness of the Revitalising Industrial Buildings Policy in assisting Kwun Tong District to become a Central Business District 2 and its impacts on the neighbourhood residential property market could be investigate in the future. All of these proposed studies can offer public administrators and urban managers valuable insights into how revitalisation should proceed, with a view to more justifiable economic, social and environmental sustainability.

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The Impact of Information & Communications Technology (ICT) On Work-Life Balance of Professional Women in the Construction Industry

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In the transition to an information-based global economy, the lines between work and home are vague as technology reshapes the workplace and the nature of home-life evolves. Work-life balance reflects an individual's orientation across career roles and non-career life roles as an incompatible inter-role phenomenon. Although work-life balance has been heavily investigated for many years, the role of information and communications technology (ICT) has not been discussed exhaustively. The notion that ICT technology allows professional women to establish a work-life balance easier is challenged. The latest incarnations of work in relation to ICT have shifted work accomplishment of the professional women in the construction industry. The advancement of ICT such as portable gadgets, mobile computing as well as electronic mail facilitates working capabilities outside the confines of the office and at almost any time of the day. However, obstacles such as uneven adoption of policies, lack of formalisation, long working hours and temporal adjustment to working time are encountered by the professional women in achieving work-life balance. In an attempt to explore the relationship between work-life balance and ICT, a qualitative research on professional women in the construction industry was undertaken. It was found that ICT plays a significant role in achieving work-life balance and those professional women are greatly satisfied with its impact. Consequently, time is effectively well managed between work and a plethora of life-related pursuits such as quality time with family, sports, volunteer work and further studies.

1. INTRODUCTION

In Malaysia, women account for only 46% participation rate in the workforce which is much lower than that of other Asean countries, as reported previously by the World Bank's research (Lisa Goh, 2013). Besides, in the TalentCorp and Association of Chartered Certified Accountants (ACCA) survey shows that there is a total of 65% of the women leave the workplace with the reason of raising a family, followed by complaints about lack of work-life balance (43%), while some wanted to care for a family member (38%). Other reasons include expensive childcare (35%), lack of support facilities for women from employer (34%) and inflexible work arrangements (32%).

Since the 1940's, women have entered the labour force in growing numbers at a rate of over 200 percent (Riley and McCloskey, 1996). These transformations are placing greater demands on women to balance work and family life. According to human context, a family is a group of people affiliated by consanguinity, affinity, or co-residence (Ivanovic, 2012).

Work-life balance is about effectively creating, managing and maintaining supportive the juggling act between paid work and other activities that are vital to us which include spending time with family, taking part in sport and recreation, volunteering or undertaking further study (Ministry of Business, Innovation & Employment).

ICT are of special interest to researchers seeking to understand the balance between work and personal life as they have been linked to a fundamental shift in how the boundaries between work and home are constructed (Golden and Geisler, 2007). Technology has changed the business practices of millions of professional workers worldwide. Today, the latest incarnations of work related information and communications of technology (ICT) have shift the way in which work is accomplish for professional employees. The ICT tools such as mobile computing, mobile communication devices and portable gadgets, have support the work to be done outside the confines of the office and at almost any time of the day (Tower et al., 2006). It is widely accepted that ICT play a crucial role in work-life balance by facilitating working at home and after formal hours (Boswell & Olson-Buchanan, 2007).

Based on the above discussion, this paper carries these objectives:

1. To explore ICT in relation to Professional Women in achieving work-life balance.
2. To examine the impact of ICT on work-life balance.

2. INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

2.1 Definition of ICT

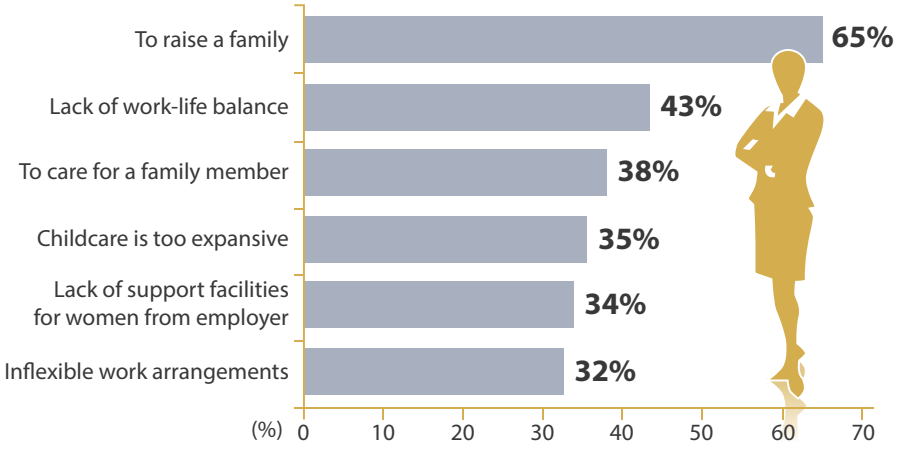
According to Gholami (2006), ICT is the result of the convergence of IT and CT technologies due to the acronym of ICT is used to represent a concept of a combination of two unrelated concepts, (1) information technology and (2) communication technology. Information technology (IT) is the term used to describe the equipment and software elements that allow us to access, retrieve, store, organise, manipulate and present information by electronic means. Communication technology (CT) is the term used to describe equipment, infrastructure, and software through which information can be received and accessed. For instance, phones, facsimile, modems, digital networks and DSL lines (Gholami, 2006). ICT can also be defined as technologies or devices that have the capacity to acquire, store, process, or transmit information (Steinmueller, 2000) and it includes personal computers, the Internet access, mobile communication devices and email.

2.2 Types of ICT

2.2.1 Portable Gadgets

Portable gadgets such as smartphones and personal digital assistants (PDAs) are the most significant drivers for improving work-life balance which have made working 'out of the office' or 'work at home' (Orange, 2006). A smartphone is used to characterise a wireless telephone set with a special computer-enabled features not previously associated with telephones such as wireless email and web browsing while PDA is a Personal Digital Assistant which refer to any handheld small device that offers computing and information storage as well as retrieval capabilities for personal or business use (Gill, 2008). It usually keeps the schedule calendars and addresses book information handy and easily access. Smartphones or any other electronic gadgets, allow us to talk, text, access location-specific information as well as accessing the office facilities, such as diary appointments and the corporate network, all whilst on the move and at a time and place convenient to the user.

Figure 1: Reasons women leave the workforce



Source: TalentCorp & ACCA *©The Star Graphics by LAZAR*

2.2.2 3G and 4G Mobile

Gill (2008) defined the term 3G as the 3rd Generation of developments in wireless technology, especially mobile communications. It includes capabilities and features such as enhanced multimedia (voice, data, video and remote control), usability on all popular modes (cellular telephone, e-mail, paging, fax, video conferencing and web browsing) and broad bandwidth and high speed. Interfacing the phone with the laptop is no longer necessary, as long as the country is 3G enabled. By using the 3G data cards slotted into the electronic devices enable the users to access Internet when on the move. In public places like airport or on a train, 3G connection enables people to work as effectively 'out of office' as behind a desk.

4G or the 4th Generation Mobile standards are a series of measures that defines the demands of a 4G network and also the standards that must be met as described by What's A G (2013). 4G networks offer 100Mb/s for individuals on the move as well as supplies 1GB/s to an immobile location or one shifting at a slow-moving speed, or standing still in that perfect spot for instance. Although 4G is faster than 3G, yet it is not widely being recognised. Therefore, people can now access their email or corporate network when off-site, travelling between meetings or working from home. It gives them the flexibility to work their own way, be more productive and have more time to dedicate to their private lives.

2.2.3 Electronic Mail

Email has been and still is the killer application according to Gill (2008). It is the most used application globally as it is easy to use and almost instant, and thus a very great tool to use within and without the office. According to New Encyclopedia Britannica (NEB, 2012), Email, in full electronic mail, is the message transmitted and received by digital computers through a network. An email system allows computer users on a network to send text, graphics, and sometimes sounds animated images to other users. For instance, there are Google mail, Yahoo mail, Hotmail, and many more. On most networks, data can be simultaneously sent to a universe of users or to a select group or individual. Recipients can elect to view, print, save, edit, answer, forward or otherwise react to communications. Large corporations and institutions use email systems as an important communication link between employees and other people allowed on their networks. Email is also available on major public online and bulletin board systems, many of which maintain free or low-cost global communication networks.

2.2.4 Mobile Computing

With the introduction of mobile computing such as laptop and tablets into the work environment as a substitute for personal computers, the workers become mobile (Faigen and Fridman, 2002). The term "mobile computing" is used to describe the utilisation of computing devices which frequently interact in some fashion with a central information system, while away from the normal, fixed place (Zimmerman, J. B., 1999). Thus, Bowden et al. (2006) stated that mobile computing technologies can facilitate a reduction in construction time and capital cost as well as reducing the operation and maintenance cost. In fact, Bowden et al. (2006) explained that mobile computing can help in providing accurate real-time progress and cost information as the project progresses.

2.2.5 Cloud Computing

Cloud computing is an evolving paradigm (Mell and Grance, 2011). It is a model for enabling ubiquitous; on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction. Cloud computing is basically the access of an organised server by using a computer or any device that could access the servers. It is a general term for anything that involves delivering hosted services over the Internet. These services are broadly divided into three categories: Infrastructure-as-a-Service (IaaS), Platform-as-a-service (PaaS) and Software-as-a-Service (SaaS). The name was inspired by the cloud symbol that's often used to represent the Internet in flowcharts and diagrams. Cloud computing comes into focus when you think about what technology always needs.

3. WORK-LIFE BALANCE

Wheatley (2012) defined work-life balance or in another term as work-home or work-family as the capability of individuals, regardless of age or gender, to combine work and household responsibilities. "Work" in this context is considered paid employment as well as unpaid work carried out for an employer. This is distinguished from "life" which refers to non-work, comprised of free time spent in leisure activities, and family time (Lowry and Moskos, 2008). The difference between work and life is problematic because the instance of work-related time, including travel-to-work, which cannot be considered as leisure, but equally cannot be considered work in the sense of, paid employment. Problems in distinguishing time-use aside, there exists inherent difficulties in defining the term "balance" vis-à-vis (face-to-face) work-life balance.

Guest (2002) argued that in the context of work and life, balance does not refer to an equal weighting of the two, but rather an acceptable and stable relationship. However, the desired point may differ considerably between individuals. In addition, balance may be dynamic and changing either through employee's needs or employer's demands.

3.1 Professional Women in Construction Industry

Professionals play an important role in the construction industry. To design and build a building, professionals are required to establish a formal design team in order to assemble and plan the physical proceedings, and to integrate those proceedings with the other parts (Hussin and Omran, 2009). The design usually has been prepared by professionals such as architects, interior designers, civil engineers, quantity surveyors, mechanical engineers, electrical engineers and structural engineers.

The Oxford Dictionary defined 'professional' as a person who is engaged or qualified in a profession. Hence, the 'Professional Woman' in this context refers to a woman who is engaged or qualified in a profession such as Quantity Surveyor (QS) and Architect. A professional is the one who provides and offers a certain standard level of service and the community can rely on. For example, according to the Royal Institution of Chartered Surveyors (RICS), routes to membership for quantity surveyor, one observation was made that most of the professionals need to have training for at least five years, has a set of ethics, an annual conference and that the profession provides supervisions, qualifications and has a code of discipline set. Similarly, the Board of Quantity Surveyors Malaysia (BQSM) has provided the latest data for registered quantity surveyor in 2012, which the total number of women registered quantity surveyor are 251 out of 963 or 26.1% while the total number of women registered graduate quantity surveyor are 767 out of 1364 or 56.2%.

3.2 Professional Women in Work-Life Balance

Work-life balance generally refers to organisational support for dependent care, flexible work arrangements and family or personal leave (Estes and Michael, 2009). Therefore, it is important for contractors or employers to ensure that their professional women staff have work-life balance (Lim and. Ling, 2012). Professional women who achieved work-life balance would not feel overworked and hence, be more satisfied with their jobs. This might then be translated into higher efficiency and productivity, which would in turn benefit the employers.

There are a lot of researches which had been done on work-life balance. For instance, Challenges of Work-Life Balance for Women/Mothers Working in Leadership Positions (Schueller-Weidekamm and Kautzky-Willer, 2012). They focus on career advancement, time-consuming child care, family life responsibility as well as a woman's tendency towards barriers to career development. Work-life enrichment has a positive spillover effect that spreads positive energy and helps to balance their work-life relationship. For each individual, the allocation and interaction with different resources such as time, money, scope of decision making, physical, emotional and social resources were crucial to maintain the individual work-life balance. Furthermore, to the existing "glass ceiling," the predominant responsibility for child care is still borne by a woman. The term "glass ceiling" refers to the condition that, despite increased entry of women into traditionally male-dominated fields, their advancement to leadership positions is still limited. However, mentoring programmes, coaching, networking, and support of the partner or from other people help to strengthen a female's "soft" skills in achieving work-life balance.

3.3 Obstacles of Work-Life Balance

Generally, obstacle is referring to a problem or an issue (Hyman and Summers, 2004). The issues of balance between work and non-work life and the gender division of employee can be traced to the 19th century (Bacik and Drew, 2006). The overall analysis shows there is only 51% who agreed that they currently have work and life balanced; 34.2 % disagreed and 14.8% have no idea (The Association of Professional Engineers, Scientists and Managers, Australia, 2009).

Based on the European Agency for Safety and Health at Work (2012), it is estimated that more than one quarter of Europeans suffer from some form of work-family conflict. Relative to time: 27% of workers in the European Union (EU) perceived that they spend too much time at work; 28% felt that they spend too little time with their families; 36% felt that they do not

have enough time for friends and other social contacts and 51% believed that they do not have enough time for their own hobbies and interests.

A research had been done by Hyman (2004) which discovered few obstacles as describe below which can influence women in achieving work-life balance in most of the industries.

3.3.1 Uneven Adoption of Policies

Formal written policies have been unevenly adopted according to enterprise size and sector. A number of recent data sets indicate that family-friendly policies (FFPs) and work-life balance policies are not evenly distributed across sectors or organisations. The Workplace Employment Relations Survey (WERS) (1998) found that over a quarter of manufacturing establishments had no policies of any kind over any aspect of work-life balance including organisations with fewer than 500 employees. Recent surveys indicate that whilst demand for better balance by employees had grown, employers have yet to treat work-life balance as a priority. Hence, from a survey by the Department of Trade and Industry (DTI) survey shows that a third of respondents looking for a job would willingly forsake pay for extra flexibility (Bargaining Report, 2003). However, an earlier study of 152 union representatives demonstrated strongly that unpaid leave provided under the 1999 legislation was unlikely to be of much practical assistance to parents, many of whom would financially be unable to take advantage of the leave provisions. Paid parental leave was seen as a key provision (Labour Research, 2001).

3.3.2 Lack of Formalisation

Lack of formalisation is something illegal or informal status (Oxford Dictionary). Many policies are informal and unwritten, under the direct control of line managers, many of whom are untrained and lack awareness and understanding of family-friendly and work-life balance issues. Recent studies have confirmed that informal provision is common, especially in those small companies which do have work-life balance arrangements (Bond et al., 2002). Moreover, larger companies are more likely to have formal policies but line managers can and do influence their impact by acting as "gatekeepers to employees' access" (Dex and Scheibl, 2001). In their study of Scottish financial institutions, Bond et al. (2002) found that whilst line managers often had discretion over application of FFPs, this was often founded upon considerable ignorance of both statutory requirements and of organisational policies. Very few line managers, including those with delegated authority, had received any specific training over issues of family-friendly working or work-life balance. There was some evidence that even where formal policy had been introduced, its interpretation and implementation was subject to informal and often uninformed line manager discretion. This could lead to internal differences in application by managers of different departments, and between different employees responsible to the same manager.

3.3.3 Long Working Hours

Women are found to be less to attain work-life balance because they must follow "working long hours culture" which counter-productive (Lewis, 2000; Rapoport et al., 2002). For those with substantial household responsibilities, often women, this will be particularly problematic (White et al., 2003). Simultaneously, if it's the office culture of long hours, it is unfair to people especially with young children to keep up with everyone. Current implementation of work-life balance fails to address many of the core issues due to the surrounding work conditions (Shorthose, 2004).

3.3.4 Temporal Adjustment

Work-life balance is interpreted and implemented by employers through temporal adjustments to working time, such as flexi-time. Temporal adjustment in working time means a small alteration in time made to achieve a desired fit or result. Nevertheless, other tangible and intangible work-derived factors intrude into people's domestic lives. The evidence above indicates that notwithstanding identification of work-life balance as temporal flexibility by employers and the extended use of flexible time arrangements over recent years; actual working hours for many people are increasing rather than decreasing. Pressures on working people (and their families) are also exacerbated by the spreading intensification of work noted by several authors (Cooper et al., 2001; Taylor, 2001; Green, 2001). Evidence from the Scottish Future of Work project confirms that work and its effects can even intrude into people's lives in ways that extend beyond the working day (or night). Many employees, including those with young families, work shifts at weekends. Some work extra hours without compensation and also professional staff commonly take work home after putting in a full working day in their offices (Harvey, 1999; Scase, 2002).

4. ICT AND WORK-LIFE BALANCE

Information and Communications Technology (ICT) continues to develop at an exponential rate and virtually everyone is involved in the construction industry (Ashworth et al., 2007). Life-long learning of ICT allows women to shift from the bottom of the career path to the mid-level or top-level of leadership positions (Melhem, 2009). Increasing permeability of work-family boundaries from the utilisation of ICT has caused the individuals become accessible at anytime and at anywhere (Lewis & Cooper, 1999; Nippert-Eng, 1996). Conversely, individuals may spend more and more time on housework activities which may have a negative impact on their job performance (Kossek and Lautsch et al., 2006). Therefore, shifting from isolated and specialised applications to environments as well as capable of communicating with others is one of the ways to characterise the recent advances of the ICT in the construction industry according to

Bedard (2003). In fact, most of the professionals are attracted and are willing to employ ICT which provide general purpose software including Internet facility (Internet Explorer or Netscape) and E-mail facility (Microsoft Outlook, Yahoo, Hotmail, etc.).

4.1. Impact of ICT on Work-Life Balance

Orange (September 2006) stated that ICT, such as mobile technology and mobile computing, is one of the drivers for improving work-life balance. Some of today's most notable effects on work-life balance occur through teleworking, in which workers use information technologies including computers, email, mobile phones, facsimile machines, modems and other networking devices.

Employees who are often on-call for work have reported that ICT devices such as mobile phones actually increase the quality of their home life (Lowry & Moskos, 2005). Mobile phones allow employees who were previously required to stay at home while on-call for work the freedom to plan family outings during their on-call hours. In addition, more control over interactions with others due to the absence of unplanned interruptions from managers and co-workers decreases their levels of stress (Dubrin, 1991).

Women suffer higher levels of stress due to work-life imbalance where a recent study showed that the stress level from work-life imbalance almost doubled over the past decade (Guelzow et al., 1991). According to Quesenberry & Trauth (2005), parents who are unable to provide abundant and affordable care for their children may experience time lost from work or a decrease in productivity. Moreover, interruptions due to family obligations can violate on work. Duxbury and Higgins (2003) reported that "employees with high role overload are three and a half times more likely to have high levels of absenteeism due to physical, mental, or emotional fatigue than counterparts with low levels of role overload." Therefore, flexibility is a key element of the family-supportive workplace (Pleck, Staines & Lang, 1980). Related advances include policies such as flexible scheduling, which have been facilitated through the implementation of technology that frees workers from a fixed, standardised schedule for the completion of their work tasks (Valcour and Hunter, 2004). As such, workplace flexibility enhanced their productivity (Golden & Veiga, 2005) and hence, indirectly improves their work-family balance (Golden & Veiga, 2005) as well as increases their job satisfaction (Bailey & Kurland, 1999).

Similarly, greater flexibility by ICT allows workers to decide where they are able to complete their work (Day et al., 2010). For example, having access to virtual private network technology allows workers to access their work computers from home, and email as well as mobile phones allows employers to stay in contact with employees when they do work outside of the office. Apart from that, access to this type of technology offers employees more opportunities to balance their work responsibilities together with their home responsibilities. Employees can avoid the commute to the workplace and use ICT to complete important work with technologies such as virtual meetings and teleconferences. Consequently, they can spend more time with their family, thus improved work-life balance. Standen et al. (1999) suggested that employees who have more flexibility and control over their work schedules due to the use of ICT are more likely to report improved general quality of life such as more access to leisure activities, improved employee psychological functioning at work, improved work performance, decreased time-based role conflict, and increased family support. These positive effects of ICT-assisted work may also improve employee health and well-being.

"Double-edged" sword is used to describe ICT in the workplace by Lowry and Moskos (2005) as it is not homogeneous in either its uses or its impact on employees. With ICT, work can be done more easily and make employees' lives better. In fact, a recent report by the US Department of Labor indicated that 55.5% of employees required the use of a computer for their job and approximately two of every five employees use the Internet or email for work purposes. Besides, ICT can make employees more accessible to others at work and can allow work and the workplace to be more available to the employee. The portability of various technologies and easy access to ICT functions enable employees to continue working after leaving the office for the day (Porter & Kakabadse, 2006). It provides easier access to information and reduced travel time to get information such as reducing travelling either to the workplace or to other sites

housing required information. Communication technologies also have made it increasingly feasible for employees to stay connected to work when not in the office (Boswell, & Olson-Buchanan, 2007).

Evidence on the impact of technology and telecommuting on aspects of work-life balance is equivocal. Generally, research suggests that the use of portable information and communication technologies is associated with increased negative spillover from work to family, even when controlling for occupation, work hours, and commuting time (Chesley et al., 2003). However, in a series of studies of International Business Machines (IBM) employees in professional occupations, Hill et al. found that telecommuters reported higher levels of work-life balance and success at personal/family life than did employees who worked in a traditional office setting (Hill, Ferris, & Martinson, 2003; Hill, Hawkins, Ferris, & Weitzman, 2001; Hill, Miller, Weiner, & Colihan, 1998). Other studies indicate that work intrudes on and interferes with the family and personal lives of telecommuters (Epstein et al., 1999; Bailey& Kurland, 1999).

4.2. Application of ICT among Professional Women

Among the ICT tools that have been popularly used by professional women are portable gadgets, mobile computing and mobile phone. The extent of ICT utilised to assist us with our work and productivity has experienced exponential growth, especially over the last two decades as pointed out by O'Driscoll et al. (2010).

The use of these ICT is a fact that they are not bound to a specific place but remain present regardless of place (Pica and Kakihara, 2003). Most organisational initiatives heralded under the banner of work-life (e.g. flexible time, job sharing, family leaves, time off for volunteering) have been developed in order to increase the schedule flexibility afforded to employees (Kingston, 1990). For many workers, particularly the white-collar employees, flexible communication technologies (such as portable computers, mobile phones and email) are associated with work design characteristics that have the potential to enable flexibility in the place and timing of work.

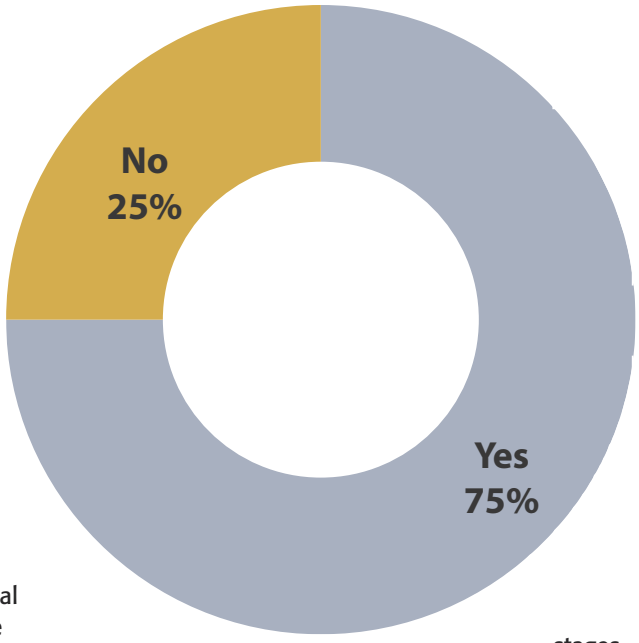
Some aspects of the effects of a strong society in many ICT programme (Spradling, C. and C. J. Ansorge, 2009). These include the history of computing, professional ethics, computer crime, security, and intellectual property. Other aspects of community impact is often not included or given minimal treatment. These include cultural issues, accessibility issues, and the effects of free open source software movement, computing and public policy, green computing, and computing for sustainability.

Therefore, differences finer grained industry also instructive, because of differences in the nature of production technology across industries related to differences in the ability of individuals in a variety of work to integrate work and family. Other industries that are more dependent on the shape, flexible and mobile technology (example, the use of laptops and mobile phones among professionals or consultants) offer greater opportunities for the integration of work and family demands because an employee has greater ability to control how, where and when they use technology (Valcour & Batt, 2003).

5. METHODOLOGY

In an attempt to explore the relationship between work-life balance and ICT, face-to-face interviews were conducted with eight professional women in the construction industry; six of whom are married while two are single. The contacting information was acquired from the Board of Quantity Surveyors Malaysia (BQSM) where relevant. The impact of the ICT is examined and this study will be conducted in several stages in order to achieve the objectives. The first stage is to establish the research problem and objectives of the study. The second stage is identifying the scope of study and the third stage is the preparation of literature review to give an in-depth understanding regarding the topic of study. Qualitative research method has been conducted for data collection. A few interview sessions with randomly chosen professional women in Penang is conducted in order to examine the research objectives. The research population of the study was targeted on those professional women who are married. Basically, all the information collected will be analysed and conclusion will be done based on the result obtained at the end of the study.

Figure 2: ICT assist in achieving work-life balance



6. FINDINGS

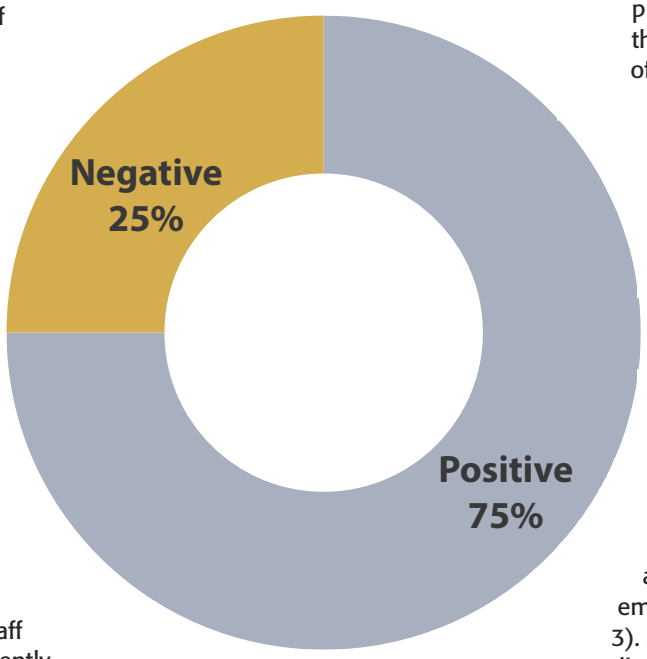
It was found that ICT plays a significant role in achieving work-life balance, and that the professional women are greatly satisfied with its impact. Among the respondents, 75% of the respondents acknowledged that ICT do play a vital role in helping them to achieve work-life balance while 25% of the respondents felt that ICT do not assist much in achieving work-life balance. Significantly, the 25% that responded slightly negatively were unmarried professional women.

Undoubtedly, ICT play a vital role in the world today. All (100%) of the respondents increased their work efficiency through the enhanced information gathering, multitasking, coordination, and transition to new tasks enabled by ICT, such as portable gadgets, mobile computing and email. ICT tools are useful and able to facilitate their work. With the use of the smartphone, it allows them to receive and reply email instantly. For instance, they can check their email and reply very quickly when they are having a traffic jam or waiting for a traffic light in car; or sometime their staff need clarification from them urgently, they can respond immediately. Email is considered one of the most useful tools to facilitate their works. They used it daily to contact people, sending or exchanging documents during work and at home. Many professional women also spoke about the benefit of ICT to limit the amount of face-to-face communication makes their work quicker and easier. It is undeniable that, with ICT, it is easier to balance their work and home lives.

When asked about how ICT aid them in achieving work-life balance (Figure 2), 75% of the respondents opine that ICT facilitate their work, thus, increasing the quality time with their family. As asserted by one of the respondents, she is able to report to the organisation which she attached by using ICT such as smartphone and mobile computing. ICT really cut short their time in meeting others like clients, contractors, staff and family while at the same time, their work can be done. They managed to distribute time well for both work and life, as they believe ICT do assist them and work-life balance can be achieved more easily. Besides, all the respondents agreed that email allows them to stay connected with people easily and it is frequently used by the respondents.

When asked about the difficulty in the relation of ICT with work-life balance, all (100%) the respondents commented that they are able to handle the ICT which they want to use. It is all about ICT now. Without ICT, one has to do work old-style and manually. For example, people can be at the airport and checking their emails. At the same time, they can read newspaper and use Facebook with their smartphones and gadgets. However, one of the respondents complained about the slow speed of Malaysia Wi-Fi compared to the speed in Jakarta and Singapore. Surfing with such a low speed is wasting time. This directly creates pressure and tension, hence, affecting her personal mood and life. If this issue is eliminated, she can get information and stay connected with others easily. Another respondent also said that she is aware of the latest ICT available but will only learn new technology if it is required. Spending a lot of time just to learn all the technology skills will not benefit her in achieving work-life balance. If facing any problems regarding the lack of knowledge in the technology, she will decided to pay others to complete her job rather than attending the course and learn the technology. She would rather pay other professionals than waste her time and money to learn new technology since money can actually be earned back. Similarly, they agreed that ICT are actually making our life more interesting and broaden our knowledge. Compared to previous generations, it would seem that life is stressful without the ICT of today. People cannot carry out their work when they are travelling or cannot contact family and friends when they are outstation for work. With today's technologies, these problems are solved. We can communicate easily with others anywhere at cheaper prices by using network application. Therefore, ICT really has a significant impact in achieving their work-life balance.

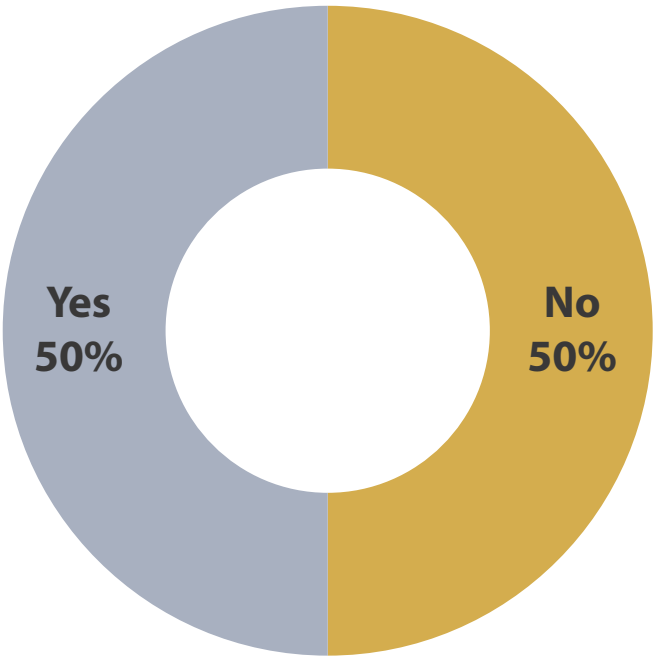
Figure 3: Feedback of ICT in achieving work-life balance



Despite the positive aspects of ICT in achieving work-life balance, a number of negative aspects also emerged from the interviews (Figure 3). About 25% of the respondents discussed how ICT has led to a work environment where they are always accessible, something that negatively impacts work-life balance. This paradigm is incompatible with home life, and gives responsibility to advance in ICT making it possible for people to be continuously on call. The smartphone, despite its many sophisticated features and abilities to pull in information from seemingly anywhere, however, is still a normal function phone to the 13% of the respondents. The advancement of ICT is sometimes not really adapted by the respondents. Although ICT enables work to be done faster, sometimes it ends up with more work to be done and thus, leads to work-life imbalance.

About 50% of the respondents faced obstacles when achieving work-life balance. Rigid time and long working hours are disliked by the respondents. One of the respondents shared her example, being a professional QS sometimes can be extremely exacting because industry demands facial interaction. She needs to attend a variety of meetings all the time, which includes meetings with clients, architects, contractor and engineers. In addition, she needs to arrive at the airport early in the morning just to catch the earliest flight; reach home tired around eight or nine o'clock at night and sleeps late, and she also needs to prepare for the next day's meeting. Sometimes, she rushes her work in the weekend before tender

Figure 4: Facing obstacles when achieving work-life balance



deadline. There are a lot of demands during peak time of projects, where she needs to stay out of the office most of the time.

With regards to overcoming the difficulties in achieving work-life balance, one of the respondent points out that one must set the priority first before doing anything. Temporal adjustments in working time are unavoidable most of the time, "We should always discuss and communicate with our professional arena by asking how we are going to give our services." Generally, one needs to do a lot of communication. We cannot blindly say 'yes' to everything, yet sometimes it is hard to achieve by saying 'no'. Hence, for the purpose of striking a balance between a 'yes' and a 'no', we need to identify the deadline and its urgency first. Another respondent also mentioned that she cannot release her kids unsupervised when focus on her career. By using technologies, she is able to see the kids with CCTV installed at home, supervise her maid and communicate with them via phone connection. She can also recognise her children's friend circle by using social networking such as Facebook and monitoring them in good condition. Next, she opines that these days women can have their own career compared to the past where they work from 8am to 5pm and still need to cook for the family after back to home. Now, eating outside from home can solve the problem. The only important thing is that career women ought to have knowledge and must know all the appropriate use of ICT. In the future, the mothers can stay away from house; see their children by installing CCTV in the house like her. She thinks that the only reason why women who do not want a career is laziness. Women are capable to do everything these days.

When ask about suggestion for other professional women in achieving work-life balance, she emphasises that clear priority always comes first. Top priority can only be one; it is either family or work. Once in a while, the decision can be swapped as there is rather hard for both of them to be in the top priority. It depends on individual and situation. With that, work-life balance can be achieved. Sometime project and appointment have to sacrifice for the family and vice versa. Furthermore, she mentioned about different view for past and present on work-life balance where past women are considered to achieve work-life balance by cooking in the kitchen and doing household responsibility as well as taking care of the children all the day. In contrast, modern women now can consider achieve work-life balance when they are back from work and have time to interact and communicate with their children. Thus, it all depends to individual. Deciding the priority is the utmost important thing in achieving work-life balance. Besides, being a mother of three children as well as a professional woman, family support is crucial for the respondent due to the reason that children cannot be left alone while she is not always available all the time for them. Her focus now will be the family. She will arranged and automate things well for her children and work. On weekends, she will spend her time with her family. Another respondent also said that one must be happy with what you are doing no matter who you are in any of the industry. With that, definitely you can achieve work-life balance.

Lastly, for the individual satisfaction level regards to work-life balance, 63% of the respondents rate themselves as four out of five while 37% of the respondents rate themselves as three out of five.

7. DISCUSSION

It is projected that the use of ICT in the workplace will only continue to increase in the coming years. We define ICT as technologies that are effectively, integrated and available to individuals throughout their environment. What was the most important to these professional women was the ability to use technology anytime and anywhere. Although this definition is narrower in scope, however, we believe that the findings represent wider aspects of the utilising of ICT in achieving work-life balance. First, the professional women spoke about multiple technologies, thus one person can utilise more than one technology to assist them to maintain their work-life balance. Second, they felt that the technologies are useful and easily available when they need them. Finally, the professional women consider these technologies as integral to their social environment and daily lives. Deeper understanding of the range of work-life balance considerations for professional women and their impact on the use of ICT are examined. Thus, in responding to our research questions, our data demonstrates that ICT do play a crucial role in achieving work-life balance.

As ICT have become so integrated in the construction industry, it was somewhat surprising to uncover that the some of the respondents indicated negative aspects of ICT which virtually demand constant round-the-clock vigil of office activities

As ICT have become so integrated in the construction industry, it was somewhat surprising to uncover that the some of the respondents indicated negative aspects of ICT which virtually demand constant round-the-clock vigil of office activities. At the outset, it was expected that respondents would primarily show a positive attitude, as the use of ICT is so much a part of their profession. Even more remarkable is the finding that the respondents implied that ICT made their work-life easier. In summary, with the availability of ICT, the expectations of professional women to achieve work-life balance in construction industry have risen as work is able to handle more efficiently. ICT have made the lives of the professional women in the construction industry easier and thus achieving work-life balance.

8. CONCLUSION

ICT is facilitating dramatic new alternatives for where, when, and how work is accomplished. In addition, domestic nature of home-life is evolving as professional women have entered the workforce. This evolution is placing greater demands on professional women to balance their work and life. Proper work-life balance is absolutely essential to live a contented life.

The important issue closely related to work-life balance is the impact of ICT used to overcome the obstacles in achieving work-life balance. In this context, uneven adoption, lack of formalisation, long working hours and temporal adjustment to working time have been identified as the obstacles for professional women to achieve work-life balance. The majority of ICT tools, especially computers, laptops and smart phones, are being used effectively in order to provide the best possible in achieving work-life balance as well as coping these barriers.

In addition, a variety of ICT types have been explored in this paper as the commonly used tools in the application of work-life and home-life such as mobile computing, portables gadgets and electronic mails. It is proven that the ability to use these latest ICT enables the professional women to enhance the quality of their life and work.

With the supportive data from the analysis, whereby 75% of the respondents agreed the ICT provide a variety of ways for them to further develop their work-life balance. Therefore, it is safe to draw into conclusion that, ICT has the potential to make radical changes in the lines between work and home. The huge increase in ICT and the ability of people to apply the ICT from the comfort of their own has created new possibilities for ICT to increase the opportunities for

professional women in construction industry to achieve their work-life balance.

9. FUTURE STUDIES RECOMMENDATIONS

The findings presented in this paper highlight several areas for future research. First, additional analysis is needed to examine how professional women in the industries other than construction industry use ICT in maintaining work-life balance. These findings would contribute knowledge to a wider understanding of how professional women in the construction industry compare to professional women employed in other areas. Finally, additional research is needed to examine how men in the industry use ICT to achieve work-life balance. These findings would contribute knowledge to a wider understanding of the role of ICT in achieving work-life balance.

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Building Surveyor's Role In Facilities Management In JKR

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In 2007, the former Minister of Public Works Department, Datuk Seri S Samy Vellu had announced that the Public Works Department (PWD) will set-up a new department for Building Surveying in order to inspect and verify all government's buildings after construction, to ensure that the contractor and sub-contractor follows all the specifications and scope of works mentioned and agreed in the respective contract. Hence the PWD is entrusted to drive the initiatives to ensure the highest standard of design and monitoring quality is achieved in the maintenance and construction completion of the projects. Therefore in 18 February 2008, the first batch of Building Surveyor had reported to PWD under the Engineering Maintenance Department lead by Dato' Ir. Annies bin Md Ariff. Six years on, the Building Surveyor professional manpower strength in PWD had grown to 43 officers all over Malaysia (Figure 1) to implement these aspirations.

NAFAM 2007 and the Facilities Management Contract

In 2007, the National Asset & Facility Management Convention (NAFAM) was held at PWTC with the theme "Asset & Facility Management: Coping with Future Challenges." It was chosen in view of its increasingly important role in effective management of expanding asset bases as well as promoting and enhancing the professional standards in Malaysia. The former Prime Minister of Malaysia, The Hon. Dato' Seri Abdullah bin Haji Ahmad Badawi had

kindly consented to officiate and deliver the Keynote Address on Monday, 13 August 2007 as well as delivering the Closing Keynote Address on Tuesday, 14 August 2007. It is hope that this convention, as part of our initiatives in promoting the increasing relevance of the Corporate Social Responsibility (CSR), it will:

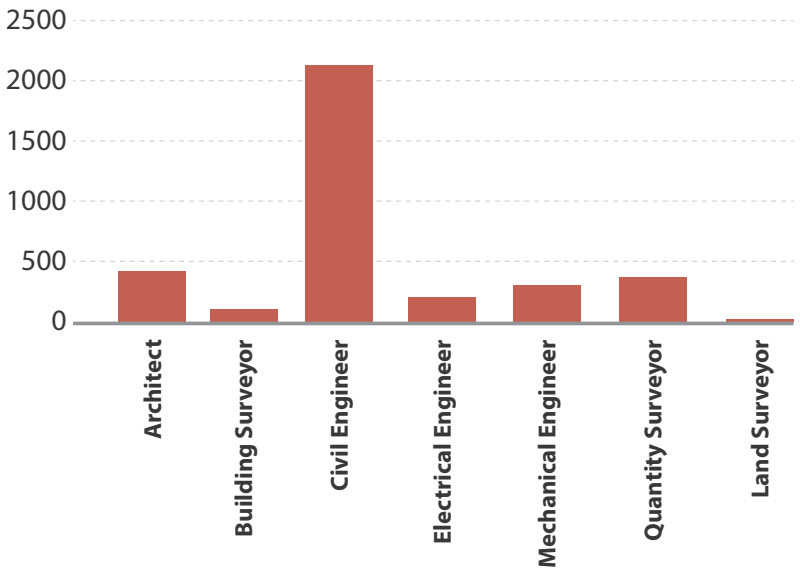
1. Serve as a means to help and facilitate the success of asset & facility management in Malaysia;
2. Help to create awareness on current issues and challenges in managing government assets; and
3. Improve the standards of Malaysia's practices to sustainable standards and performances by addressing the most challenging and pertinent issues from technical and strategic viewpoints.

In order to achieve the NAFAM 2007's resolution, the PWD had take their initiative in 2008 with the set-up of a committee to develop Facility Management Contract PWD FM2008 and now, it has been used at some of the government buildings. Since Building Surveyor is the only profession in the JKR that has a background in Facility Management subject at university level, some of the Building Surveyors in the PWD have been selected to the committee to develop and to administer the Facility Management Contract (FM Contract).

The phases in Facilities Management

There are three phases in an FM Contract where the Building Surveyor's roles are important in order to ensure a successful implementation of the contract (Figure 2).

Figure 1: Professional Skim in PWD



Planning Phase

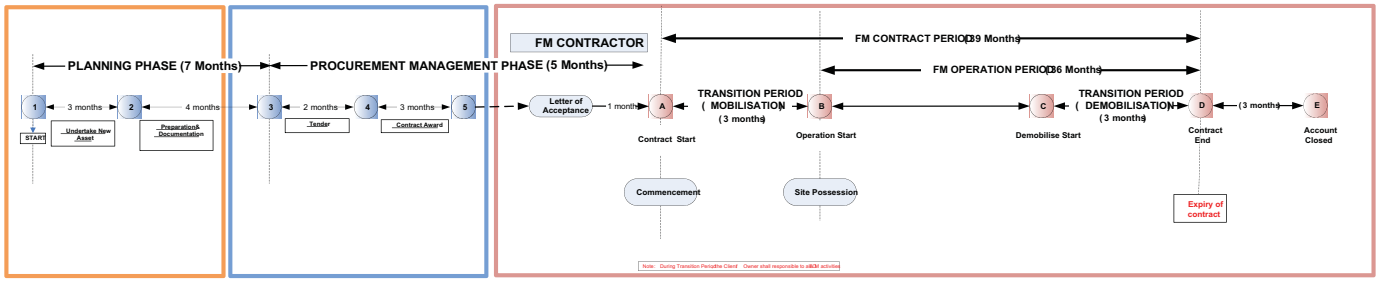
The planning phase is the phase where the transition of assets and documents of the premise from the client/agency to JKR. During this phase, the Building Surveyor should play their role to conduct the Building Condition Survey (BCA) and Post Occupancy Evaluation (POE) in order to diagnosis the method to upgrade corrective operation; procurement of facilities project through service level agreement or contracts based on continuous performance; health and security awareness within workplace design. This will help apply the techniques of asset maintenance and effective operation, evaluate facilities operation techniques for the agency, appraise facilities performance level for a work place and propose upgrading for facilities components.

The Building Surveyor will also gather all the information of the premise in order to make the asset registration and to compile all the data, manuals, reports and other documents of the premise which will be updated into the Sistem Aset Tak Alih Kerajaan (MySPATA). With the information and data of the premises, the scope of the Facilities Management Contract for the premise will be determined and the Key Performance Indicator for the FMC will be set-up together with the document preparation for the procurement of the Facilities Management Contract.

Procurement Phase

During the procurement phase, the Building Surveyor in JKR will conduct the FM tenderer's briefing and site visit. Basically, the Building Surveyor will provide a brief on the scope of the services, which has been determine earlier for the site and the Building Surveyor will bring all the tenderers around the site for a review.

Figure 2: PWD Facilities Management Contract Timeline



Since Building Surveyor is the only profession in the JKR that has a background in Facility Management subject at university level, some of the Building Surveyors in the PWD have been selected to the committee to develop and to administer the Facility Management Contract (FM Contract).

The FM tenderers will submit their qualification which will be verified by the Building Surveyor in JKR. Only the qualified tender will receive the invitation to submit their tender.

After the tender is closed, the Building Surveyor together with other officers from JKR will implement the tender evaluation and come out with the tender evaluation reports, which will be submitted to the tender board for their approval and proceed to the select the FM Contractor.

FM Contract Phase

The FM contract phase in PWD FM 2012 contract includes the transition period and operation period which takes about 39 months throughout the contract.

i) Transition Period (3 months)

During the transition period, the Facilities Superintending Officer (FSO) will convene with a Transition Coordination Group together with the FM Contractor, existing/succeeding FM Contractors and customers.

The Transition Coordination Group will carry out the Facilities Familiarisation and Verification (FFV) and report to the FSO. The FFV report should identify any defects found at the site and any recommendations to rectify the defects should be included. On a weekly basis, the FSO should receive reports from the FM Contractor on the rectification work done by the relevant parties. Any on-going defects will be identified by the FM Contractor and shall be immediately notified to the FSO. The FFV shall also help a new FM Contractor to familiarise with the site and verify all the site documents which are handed over by the outgoing FM Contractor.

In this process, the Building Surveyor will make sure the details of how the FM Contractor shall manage the services to ensure service levels shall be met during the Transition Period taking into account the phasing of construction work, staggered Defect Liability Period (DLP), effects of construction works on the services and the use of technology during the Transition Period; and during the hand-over from the previous FM Contractor. The Building Surveyor will also ensure that the FM Contractor shall submit to the FSO a detailed schedule of all activities and key milestones during the mobilisation and demobilisation phases. The schedule shall show the critical path for the successful and timely mobilisation and demobilisation of the contractors' responsibilities.

ii) Operation Period (36 months)

During the Operation Period of the FM Contract, Building Surveyor will be part of the FSO team and will make sure the FM Contractor shall manage the services to ensure the provision of high quality services and amenities to the customer. On the other hand, the Building Surveyor needs to be more stringent in order to make sure that the Garis Panduan Penyenggaraan Berjadual Bangunan Kerajaan has been referred by the FM Contractor as a minimum guide for them to start their work. The FM Contractor shall implement a fully integrated approach to the management of the services to deliver a safe, secure and comfortable environment.

The Building Surveyor will supervise the FM Contractor to make sure that all activities undertaken under the contract shall be coordinated and approved by the FSO.

The Building Surveyor will verify the activities of the FM Contractor to ensure that they shall manage its work to:

1. ensure that its planning and programming is comprehensive and provides for the delivery of all the performance included in the contract;
2. proactively liaise with and satisfy the requirements of all relevant authorities;
3. diligently address safety and security, functionability, maintainability, sustainability, durability, reliability and aesthetics in all aspects of the services;
4. provide for the services which are coordinated with and complementary to the activities of the FSO and other authorities;
5. diligently minimise disruption and inconvenience to all customers when carrying out routine work; and
6. ensure corrective and preventive work orders and instructions are raised proactively as a result of FM Contractor's inspection rather than customer's or FSO's observation. In particular, a substantial number of work orders shall be raised proactively by the FM Contractor as a proportion of the total number of work orders raised in respect of common use areas.

Additionally, the Building Surveyor will make sure that the FM Contractor shall participate in the process of performance management include monitoring, review, reporting, auditing and agreement with the FSO against the performance indicators. It shall include but not limited to:

1. Conduct and analyse, on a quarterly basis, the year's objective customer surveys to accurately assess actual performance against the performance indicators. The customer surveys shall be conducted on a representative sample which shall be in line with acceptable statistical methods of sampling;
2. Convene monthly performance reviews with the FSO;
3. Undertake, on quarterly basis, the year's audits in consultation with the FSO on its performance with regards to each performance indicator; inviting the FSO to attend all performance audits;
4. Diligently enter performance assessments and comments on a continuous basis into the information management system;
5. Liaise with the FSO to discuss performance assessments and comments in order to meet the key performance indicators (KPI);
6. Provide the reports required by the FSO and in accordance to the contract; and
7. Maintain comprehensive records of all incidents.

The Scope of the Facility Management Contract

Throughout the FM Contract, Building Surveyors will be included as members of the Facilities Superintending Officer (FSO) where the Building Surveyor shall receive instructions from the FSO only. The Building Surveyor shall act as the FSO's representative in checking and verifying work in progress, work done, inspections, records and reports submitted by the FM Contractor. To achieve this, no records or reports shall be submitted to the FSO without first being signed by the FM Contractor's Operation Director and countersigned by the Building Surveyor. The FM Contractor shall assist the process by providing all required records and databases to the Building Surveyor. There are four main scopes of service categories which are provided in the PWD FM 2012, which includes but not limited to (Figure 3).

Figure 3: Scope of services

Scope of Services	Item
A. Management Services	1. Transition Management Services 2. Administration & Financial Management Services 3. Quality Management Services 4. Utilities Management Services 5. Safety, Health And Environmental Management Services a. Risk Management Services 6. Incident Response And Disaster Recovery Management (IRDRM) Services 7. Human Resource Management Services 8. Customer Care Management Services 9. Management Information System (MIS) Services a. Inventory Management Services b. Warranty Management Services c. Technical Library Management Services 10. Energy Management And Conservation Services 11. Waste And Redundant Materials Management Services 12. Security Management Services 13. Event Management Services
B. Operation and Maintenance Services	1. Civil/Architecture 2. Mechanical 3. Electrical 4. House keeping 5. Pest control 6. Landscape 7. Security
C. Engineering/Minor Works Services	1. Repair/Replacement 2. Renovate 3. Refurbishment 4. Rehabilitation 5. Retrofitting 6. Upgrading 7. Conservation
D. Professional/ Consultancy Services	1. Proposal Report 2. Technical Advice

Conclusion

In conclusion, to achieve good governance in Facilities Management Contract in PWD, the Building Surveyor with its developed processes and tools is the best to check and verify work in progress, work done, inspections, records and reports submitted by the FM Contractor. In my professional view, a department of Building Surveyor should be established in PWD in order to guarantee a career path for the Building Surveyors in the PWD. This would help the PWD to extend their role to be a technical department of reference in the Facilities Management work in all government agencies. With the establishment of the Building Surveyor Department in PWD, it will open up opportunities to Building Surveyor graduates to join the PWD and contribute to the improvement of government building facilities management and Malaysia's building industry in general.

In my professional view, a department of Building Surveyor should be established in PWD in order to guarantee a career path for the Building Surveyors in the PWD.

DIBS: A factor causing high property prices & development land prices

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It is reported in The Star on 25 June 2013 that Bank Negara is studying the risks arising from the developer interest-bearing scheme (DIBS) with a view of imposing curbs on it. The DIBS was introduced during a period of weak property market condition and it is designed to stimulate demand by allowing property buyers to make property purchase with minimal capital outlay.

Since the weak property market condition is over and with the current low interest rate environment, prolonging the DIBS does more harm than the benefits that it claims to bring.

In fact, I would argue that the DIBS is one of the causes of the current high housing prices and residential development land prices.

Firstly, the DIBS encourages speculation as speculators bought properties with the intention to flip for quick capital gains. The DIBS is a mechanism that facilitates 'no money down' on the purchaser and hence, a speculator can have multiple bookings with little capital. Obviously, speculators are more than happy to use the DIBS scheme to fuel speculation. The so called 'property gurus' also encourage 'no money down' as a 'creative property financing' method. Speculations are facilitated by the DIBS as it encourages speculators to make as many booking as possible. Such bookings create a false impression that there is high demand for properties in DIBS projects.

However, the consequence is detrimental to the property market as the DIBS artificially inflates capital values. These artificial high prices become the reference prices in setting the selling prices of new units or phases. New launches will benchmark their selling prices to projects with the DIBS that had shown high sales rate indicating high demand. As a consequence, the subsequent new launches will reflect the inflated high prices. Thus, the increase in capital values is not due to demand and supply, but due to the costs and interests that have been built into the selling prices incorporating the element of speculations.

When this happens over a period of time, it will give the impression that house prices have indeed increased, coupled with developer's claims that the development costs have increased, thus creating an artificially high market pricing environment. The common people will be deceived that pricing for housing are indeed high and are forced to accept such pricing. "Affordability" for these common people would mean taking more borrowing based on husband and wife's dual income and through other means to generate additional income such as part-time jobs.

The second impact is on the residential development land market. Development land suitable for housing will be priced based on the high property prices. Hence, land owners will sell their land at higher land prices than before. Developers

without land banks will buy these lands with the perception that the properties that they develop can be sold at the high prices. Property market studies undertaken will indicate that there is demand for highly priced properties and financial feasibility studies will show that housing development on such land is financially viable and profitable.

Therefore, the artificial high prices due to the DIBS are propagated from the primary housing market to the development land market and translated back into higher property prices of the primary property market. The developers can now claim that land prices are high and therefore, house prices have to be set at high level to make profit.

Thus from this analysis, we can say that the DIBS is a root cause initiated by the developers themselves! In fact, for developers who have land banks, their land costs are low and the high selling prices of properties will generate abnormal returns and huge profits to them.

In the final analysis, the DIBS started by developers has encourage speculations thereby created an artificial high demand which propagate high development land prices that later translate into high property prices. An environment of high housing price is created and sustained until the next downturn of the property cycle where these excessive prices are adjusted.

"Affordability" for these common people would mean taking more borrowing based on husband and wife's dual income and through other means to generate additional income such as part-time jobs.

The parties who gain in the process are clearly the developers, speculators and land owners. True property buyers suffer and the society at large will also be affected as more debts are to be borne by households.

As a conclusion, a ban on the DIBS by Bank Negara is a welcome move as it will remove one of the root causes of high property prices today.

Managing Stress by Developing a Personalised Stress Prevention Plan

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WE ALL GO ON WITH OUR daily lives and occasionally get overloaded. We all know what it feels like to be overwhelmed by stress. But understanding the basics of managing stress is invaluable as pulling out a stress management or relaxation technique, adopting simple steps to sort things out before it goes beyond control, can effectively reduce high levels of stress to a more manageable level and thus, avoiding negative health consequences. The best way to manage severe stress is, of course, to manage stress on a daily basis as it comes or to manage it while it is still at low manageable levels and preventing it from becoming severe.

Managing stress using personal and positive approaches that work well and using it to gain some relief is all it takes to develop a personalised stress prevention plan. Stress prevention can't work if it is pursued in such a reactive manner. Effective stress prevention strategies require people to make important changes to their lifestyles so that they take proactive steps to avoid or to reduce stress and enhance their well-being. To perform effective stress management techniques requires daily commitment in order for it to be sustainable.

Lifestyle change

Changing lifestyle is not an easy thing to do, even when it is performed with the best interest in mind. When trying to create the desired changes, the tendency by many is to jump into the deep end and try to hold on to a rigid set of new lifestyle rules that are sometimes uncomfortable as many aren't prepared for the unforeseen circumstances. There are some who manage to make it work effectively for a short while through strong willpower. But ultimately something tends to slip through due to poor concentration, wrong or ineffective strategies. When these happen, people tend to revert back to their old approaches or repeat past habits that may give short term comfort without realising that they are harmful in the long run.

Taking a more deliberate, gradual approach towards lifestyle change can make the difference between success and failure. A gradual approach to change allows for people to develop their motivation and to prepare effectively for failures and relapses. This can reduce the chance of side-track from the change process, thus creating lasting lifestyle change. This will better help a person to think through and strategise the change process.

Motivation

Critical to the change process is motivation as it serves as a strong foundation and provides continuous synergy. It is the basis upon which people set their change efforts on, and also the energy that propels them forward through the stages of change. All change efforts start with motivation, which is driven by unexpected challenging events that may sometimes upset their comfort, luxury and even status quo. Effective motivation can make them become aware of problems that are to come. Before there is awareness of a problem and content with daily events, there is no motivation to change.

Effective motivation may start with pondering on a few past key stressful events that have challenged you, made you aware of life problems and learning some effective stress management plans. For instance, perhaps you were overwhelmed about making a presentation for a new task? Perhaps you found yourself repeatedly arguing with your staff about below average performance and poor outcome. Perhaps you were told by the doctor that the back pain that you have been experiencing lately is caused by long hours of driving. Perhaps you are now realising that the tiredness you are facing is due to the angioplasty that was done many years ago but continue to have the same old diet and lifestyle. These are some of the innumerable ways that you can become challenged, but these could have motivated you to pursue effective lifestyle changes.

Effective motivation may start with pondering on a few past key stressful events that have challenged you, made you aware of life problems and learning some effective stress management plans

Awareness

Strong commitment to change requires the extension of awareness of the problems faced and how to handle them. To reach the stage of change is actually having the awareness of the issues or problems at hand and to seek out information or steps about how to manage them. This could be through self-learning from various sources on the impact of stress on health and performance or fruitful advices from close friends. The awareness stage of change is very important as it strengthens the foundation for future change efforts. Learning more about how the body and mind reacts to stress and what can be done to correct these problems can lead to more effective planning and carrying out the process of stress management and change.

Self-prepared for change

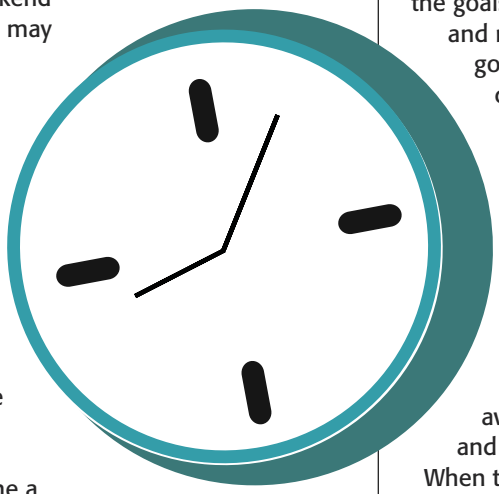
Starting to organise how to handle those problems using a personalised plan from lessons learnt is in fact a change process. By selecting appropriate methods for reducing your stress, you may come up with a list of possible approaches that you believe will work for you but with different strengths, weaknesses, priorities and preferences. Anything that you need to accomplish in order to fulfil your stress management plan occurs during this stage. Actual behavioural change starts for the first time during this stage. At this point, the commitment to change is made, your plan of action set and your preparation is complete. It is now time for you to implement your plan. If proper planning is made, this should be a relatively simple matter of doing the things you've said you would do, such as improving your capacity building, time management, healthy eating, regular exercise, anger management, etc.

This is followed by closely monitoring the progress, making notes on various options available, and balancing between the available choices

and potential consequences. This is charting the daily practice by monitoring the progress and finding ways to further improve should hiccups arise. It teaches us to accommodate and visualise the progress to help us stay on track. The experience teaches us to interact with the future circumstances and what to do should similar incidents repeat in the future. This is in fact the organisational element of managing stress using the personalised stress prevention plan and supported by the motivational factor to make it works effectively.

Maintenance for continuity

Effective stress management means effective approaches and techniques that are followed by positive changes and outcomes. At this stage of change, stress management techniques have been incorporated into daily life and the goal changes from implementation to maintenance. If necessary, revisit earlier stages so to alter the current routine to respond to life changes. For instance, if you have to go outstation for a month or so to complete a task, you may need to alter the normal daily routine of perhaps spending time at the kopitiam with your friends or the weekend exercises. You schedule may be too tight for you to spend time on other routines and the situation requires you to alter the types of stress management techniques you practice. Maintaining a positive perspective with regards to your busy and tight schedule through the practice of cognitive restructuring approaches may become a higher and more realistic priority than making time for a hang out session with your friends or planning for a family vacation.



The task now is to move from a general understanding of the various stages of lifestyle change namely motivation, awareness, commitment for change and maintenance to an approach that will help propel you into a healthier and less stressed lifestyle you want to achieve. In order to best do this, think about developing a personalised stress prevention plan for how you can add regular stress prevention approaches to your life and then, executing this plan to make it an effective reality.

Selecting methods that suit you

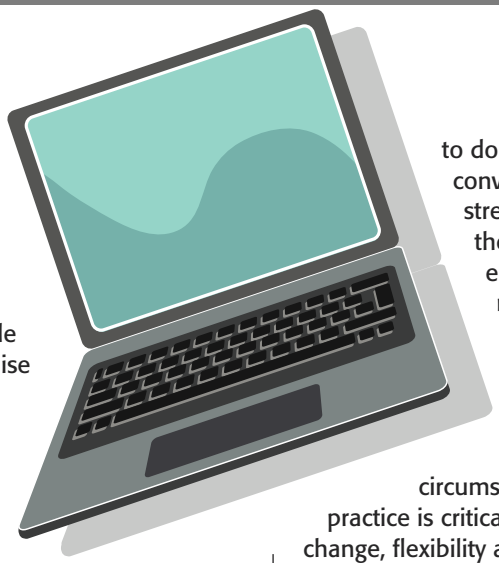
The best prescription for reducing stress is one created based on knowledge of the stresses you face as well as an appreciation of the strengths, weaknesses, opportunities (options) and threats (hiccups). But it must be effective enough to be accomplished should the goals and plans set are clear and simple, practical and manageable. It is not an issue of high or low goals being set but practical approaches that can come up with effective workable outcomes; and it may not necessarily get to the finish line all at once but something that may be changed and expanded or modified at a later suitable time as and when it is necessary to achieve counter-productive goals.

Effective stress management means effective approaches and techniques that are followed by positive changes and outcomes

It may sound complicated as problems are already at hand but try to choose goals that you think you will enjoy performing as opposed to the ones you anticipate will be aversive. Make sure to keep the goals concrete and highly practical with fewer complications. When the goals are phrased in practical and concrete terms, they are easier to accomplish and the rates of success are easily measured. Making honest self-promises work in most circumstances, but it must be practical and concrete such as:

- I will not repeat my faulty thinking patterns but correct them by practicing cognitive restructuring approaches.
- I will find time to have my 45 minutes of brisk walking every Sunday morning, come rain or shine.
- I will recite my doa to God after every prayer, no matter how busy I am.
- I will wash my car and vacuum it at least once a week and that is an exercise routine.
- I will examine my time management strategies and alter them so that they better fit my values.

The list could go on and on, but it is pointless to try many things all at once. Rather, it is effective to be



selective and to prioritise the list, and concentrate on the few goals that are helpful. But it must come with commitment to carry it out. Making a commitment is easy, but keeping these commitments when they make you uncomfortable is the difficult part. You may formalise your goals by writing it down and displayed at locations you can see it over and over again, or through compassion with someone you trust. Such a contract may come with a specific time frame for achievement or frequency to reduce ambiguity. Any changes made to the contract must come up with a revised version that must be practical and better than the previous one to avoid further and repetitive loopholes. Reading through your contract on a regular basis will also help you keep your commitment on track and ensure that the goals are realistic and manageable.

Tracking

Tracking methodology may be one that is simple with jotting down important comprehensive points that involves keeping an elaborative record of entries before and after each action was taken, what and when an action was taken, what goal was trying to meet by engaging in that activity, details of the feeling before and after each action was taken, noticeable stress levels change as a result of actions taken, and visible pattern changes that can help to maintain motivation.

This is a new level of practical cognitive restructuring exercise using the negative thoughts you may have been recording, directly or indirectly, as a result of facing those stressful episodes, as the source materials for future referencing.

Another effective way of late is the use of digital assistance such as smartphones to remind us of the regular scheduled stress management and prevention activities, and to schedule regular reminders to do things you might otherwise conveniently forget by integrating those stress programmes and reminders into the calendar system. As stress is a never-ending life process with dynamic stress management goals, one may wonder at some point in time how to get a stress management and prevention programme in place, how to find effective ways to keep it going, and how to adapt it to the changing circumstances in life? As consistency of practice is critical to success in the action stage of change, flexibility and adaptability maintenance stage of change certainly brings significant effect. The ability to be aware and sensitive to how change is faced is always the key element.

The plan should work

In everything that we do, the key to success is not to push too hard at any given moment. Effective stress management is an area where trying harder will often only make things worse and at the expense of other comfort. Rather, taking things easy and do not rush but enjoy every moment of it. Slowing down is always the key to a better practice and a happier experience. Even if you are off-track for any reason, simply get back on track as soon as possible. It's a blessing to realise that you are off-track than to ignore it completely. Managing stress is never a competition; instead, nurture and cultivate the stress management skills as part of a living process. Working towards implementing these practices into the daily routines can go a long way towards reducing stress in life. Ultimately, reward yourself for the progress you make, and in no time, these new practices will become old habits.

And that personalised stress prevention plan should work.

In everything that we do, the key to success is not to push too hard at any given moment. Effective stress management is an area where trying harder will often only make things worse and at the expense of other comfort

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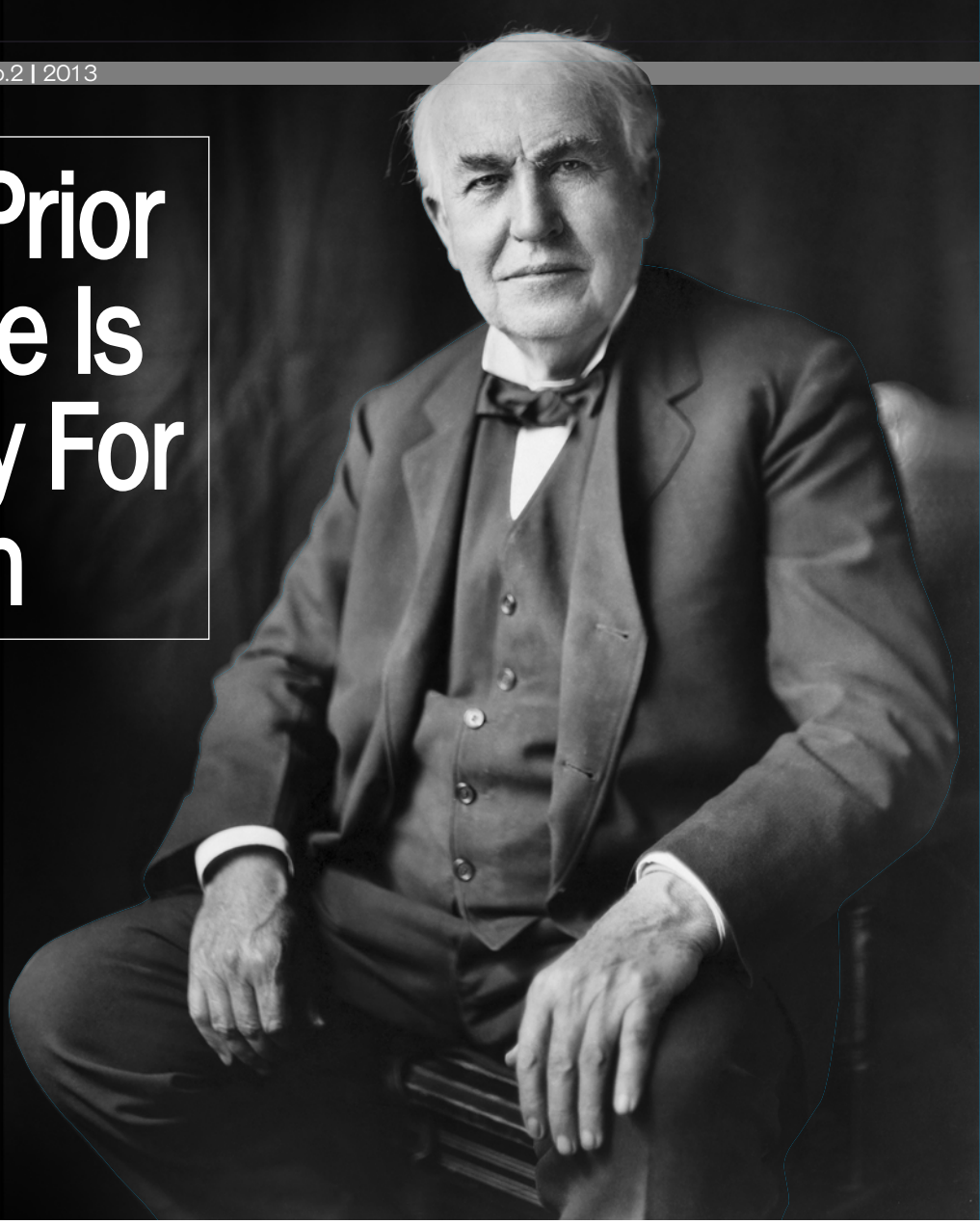
Whether Prior Experience Is Necessary For Innovation

By Dr. Arshad Husain Ph.D

I wish to start with a quotation from Thomas Edison the inventor of the electric bulb who said, and I quote, "I have invented one more way of how NOT to make a light bulb; there are still infinite ways to go."



I will now proceed with the provision of a definition of innovation by Denning and I quote 'innovation is a transformation of practice in a community'. This statement carries with it the concept that a successful innovation is one that is taken up by a community with an accompanying adjustment to expected work methods and/or practices. There is an important distinction between the meaning of 'invention' and 'innovation'. Carayannis, Alexander, and Mason state that: 'Invention is the development of a new idea that has useful application. Innovation is a more complex term, referring to how an invention is brought into commercial usage'.

Colonel Eli Lilly founded the global pharmaceutical company named after him in 1876 in an old dilapidated warehouse building with only three workers. Today, they have 41,000 employees handling an ever flourishing business across the globe in 138 countries. They have an annual budget of 2.3 billion dollars spent on Research and Development alone in consideration of the progressive manufacture of New Products through a process of new ideas and innovation.

The list can go on…the founding of KFC……McDonalds etc.

Therefore, the answer is an emphatic NO to the question of whether prior experience is necessary for Innovation. In other words, innovation commences without prior experience.

There is an important distinction between the meaning of 'invention' and 'innovation'. … Invention is the development of a new idea that has useful application. Innovation is a more complex term, referring to how an invention is brought into commercial usage'

The process of adopting any new tool involves a learning curve for individuals. This describes the need for learners to be creative in their approaches to learning in a rapidly changing environment.

The founding fathers of such global giant organisations of today required no experience that led to the innovative products that they finally produced and are progressively manufactured today.

Broadly speaking in the early phases, news of an innovation spreads through a range of communication channels, including face-to-face, email (one-to-one or one-to-many) or telephone. These initial contacts are likely to be with trusted colleagues and a high degree of control over the information imparted is assured. As the introduction of the innovation progresses, other forms of dissemination are introduced. This might be via a website or newsletter, through focus groups, at committees or departmental staff meetings. These approaches exploit existing communication channels and people networks, although they may also involve the creation of new networks specific to the innovation. As communications spread outwards, the originators of the initiative are less able to control which individuals receive information, and the content of the correspondence. There is also a greater potential for sceptics to be encountered. Despite this, awareness of the initiative grows, is diffused across campus, and clusters of individuals with greater awareness appear.

The process of adopting any new tool involves a learning curve for individuals. This describes the need for learners to be creative in their approaches to learning in a rapidly changing environment. An organisation that is devoted to change is the most likely environment for a culture of learning to flourish. This in turn enables learners to share experiences thus enhancing the learning process. Positive experience with technology inclines an individual towards adoption of other technologies.

Therefore, potential adopters of innovation evaluate the possible 'value' that the innovation has to them. This value can be measured in terms of 'cost' and 'benefit', with the value being determined by the balance of these two factors. Another necessary factor is the importance of 'resources' and 'communication'. Thus, personal and institutional factors combine to determine adoption of an initiative. Such factors are:

Personal factors

- Costs
- Effort to acquire new skills
- Time
- Resources
- Necessary skills
- Prior experience with similar innovation
- Risks of failure
- Loss of self-esteem
- Loss of social approval

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Institutional factors

- Resources
- Equipment
- Finances
- Training

It could be argued that some of the factors that are classified as 'personal' are equally applicable to institutions. For example, the risk of failure is a consideration for a university committee that is approached to support a scheme. The costs in respect of time and effort are also valid considerations for the institution as a whole.

Additional factors to be considered include:

- The nature of the initiative – whether it is a local, national, collaborative, or a distributed venture.
- The aspects of institutional activity that are set to gain from the innovation – these may be related to teaching and learning, research, administrative functions or a combination of these.

Both personal and organisational processes influence a culture of innovation. These organisational processes are: "management values, rewards, prohibitions, and encouragement of new ideas, encouragement of risk-taking, and the like."

To this list we can add services, support, and communication channels and staff networks. An institution with these key components in place is better placed to ensure that innovations are facilitated, encouraged, accepted and diffused across its campus.

Thus, the institutional environment shapes the development of the initiative, its adoption and implementation. Culture also affects the success or failure of a new innovation. Basically, in a culture of innovation, people will have a habit of constantly looking for ways to improve things.

Organisational culture is understood as the "values and beliefs shared by personnel in an organisation." These cultural beliefs translate into "communication and mutual understanding" and they influence the beliefs and behaviours of individuals. Organisations use different resources and processes to guide behaviour and change. This emphasises the importance of the pervading culture within an organisation in relation to the degree of acceptance of a new innovation.

The influence of organisational culture on creativity and innovation are viewed as the main determinants leading out of: strategy, structure, support mechanisms, behaviours that encourage innovation, and communication. This highlights the requirement for institutions to encourage: flexibility, autonomy and co-operation at the 'structure' level; reward, recognition and resources at the 'support mechanism' level; support for risk taking, change, learning and conflict handling as the behaviours that encourage innovation; and finally open communication.

Two important determinants are 'push' and 'pull' factors. Institutional push factors might be rewards offered by an institution to encourage the adoption and use of a new innovation, or mandate to enforce adoption. Personal pull factors include the perceived need for the resource and the benefits to be gained by using it.

The institutional framework is bounded by external influences, which in turn influence decisions taken at institutional, faculty, department, and project level. The strength of the boundaries between faculties and departments, or the existence of cross-disciplinary collaborations can affect diffusion of innovations across an institution.

In today's world of marketing, it is important to learn how developing the creative ideas that lead to innovative products are a discipline by itself. It is important to learn techniques that can lead to products that will have lasting competitive advantage in the marketplace. In addition to going out to speak to customers, it would be of further advantage to discover the other research techniques that can lead to insights that will ensure the development of products that create significantly more value for the customer. ◘

Dr. Arshad Husain is an acclaimed Professor of Psychology, Human Resource Management, Marketing and Management. He is a well-known author and writer. He is presently the Chairman of an International and recognised Institute – The Institute of Professional Studies (UK), where he teaches from anything up to 34 subjects at university level based on both research and experience. He has written various books and provided numerous research based papers and articles more specially, on www.articlesbase.com. He has taught at many world renowned universities following a successful professional career where he rose to the position of becoming an effective CEO of a Global Multinational company for a number of years. He is extremely well educated from the very best universities in the world having done an extensive Ph.D. and receiving a Doctorate in both Human Resource Management and Psychology. He did his MBA in Marketing. He is approached by students, professors and executives from all over the world who wish to seek a mature conclusion to all their personal and professional problems. His email address is husainster@gmail.com.

...the institutional environment shapes the development of the initiative, its adoption and implementation. Culture also affects the success or failure of a new innovation.

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