



THE UNIVERSITY OF HONG KONG

ProMaRC MEETING IV with UTM Visit to HKU

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hosted by The University of Hong Kong, Hong Kong

Presented by - Dr. Thomas NG

for - Centre for Infrastructure & Construction Industry Development (CICID)

The University of Hong Kong

Some Ongoing CICID Research Projects

1. Construction Industry Development Comparison & Acceleration (CIDCA) - funded by Hong Kong Research Grants Council
2. Establishing a Hong Kong Based Carbon Labeling Framework for Construction Materials - funded by Construction Industry Council, Hong Kong
3. Management of Infrastructure Rehabilitation, Redevelopment or Revitalisation (MIRROR) - funded by The University of Hong Kong, Hong Kong
4. Public Private Partnership in Infrastructure Development (PPPID)
5. Relationally Integrated Value Networks for Total Asset Management (TAM) funded by The University of Hong Kong, Hong Kong



Construction Industry Development Comparison & Acceleration (CIDCA)

Investigators

- Prof. M.M. KUMARASWAMY Dr. G MAHESH & Mr. Pu YANG

Background

- HK Construction Industry in late 90's:
- Pressures to re-examine priorities (e.g. for 'fast-build') and protocols/procedures following some scandals and visible general shortcomings
 - Anticipations following Return of Hong Kong to P.R. China
 - Asian Financial crisis
 - Awareness of improvement initiatives in UK and other countries
- 'Construction Industry Review Committee' led by Henry Tang – CIRC Report (Jan. 2001):
- 109 recommendations with a vision of "an integrated construction industry that is capable of continuous improvement towards excellence in a market-driven environment"



Construction Industry Development Comparison & Acceleration (CIDCA)

Aim:

- An Independent assessment of Industry Improvement trajectories - following (but not limited to) recent high profile reform recommendations in HK

Overall Objectives:

- To evaluate the effectiveness of the industry improvement programmes against their original objectives, while discounting / allowing for (i) industry development trends that may have continued even without reform inputs and (ii) changing aspirations, priorities and concerns
- To unravel reasons for any perceived shortfalls in the above implementation and to unearth any root causes, with particular reference to relevant public agencies and private organizations involved; and
- To learn lessons that could help to improve future industry development agendas and re-align current development trajectories.



Establishing a Hong Kong based Carbon Labeling Framework for Construction Materials

Investigators

- Dr. Thomas NG et al.

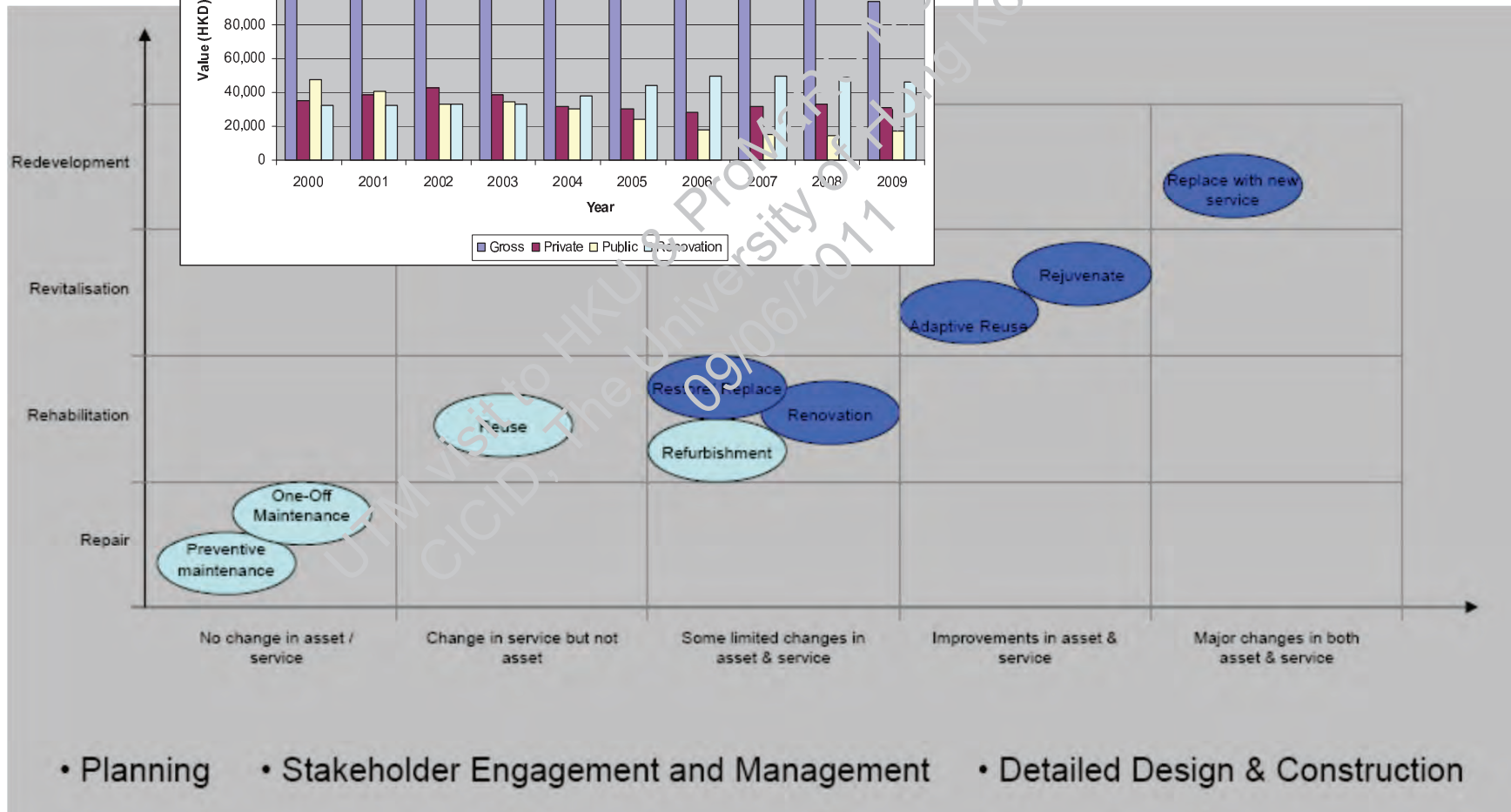
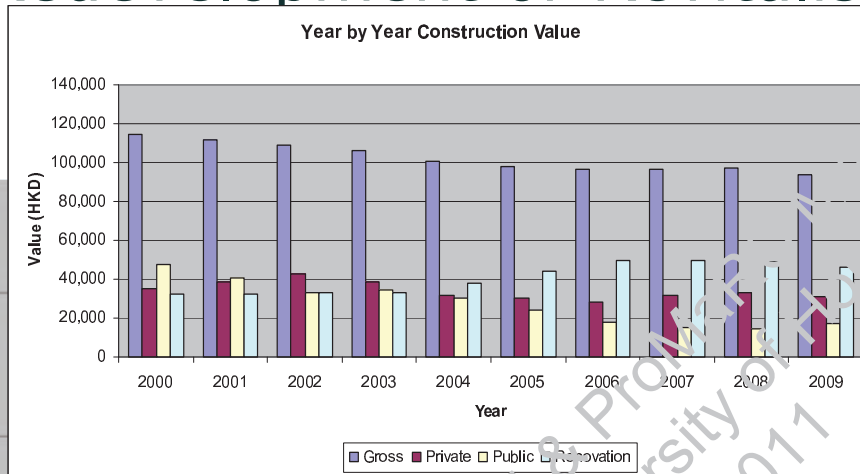
Aim

- To develop a framework to measure and benchmark the lifecycle carbon footprint of a building product towards meeting consumers specific emission goals



Management of Infrastructure Rehabilitation Redevelopment or Revitalisation (MIRROR)

Prof. M.M. Kumaraswamy,
Dr. G. Mahesh, Mr. Pu Yang



Management of Infrastructure Rehabilitation Redevelopment or Revitalisation (MIRROR)

Objectives

- Investigate and identify the specific characteristics and challenges of ‘3R projects’ (for ‘Rehabilitation, Redevelopment or Revitalisation’ of physical infrastructure), as against those for constructing new infrastructure; that would warrant special consideration by Project Managers in general (including overseas)
- Unveil the special risks, typical performance criteria and critical success factors for ongoing and forthcoming ‘3R projects’ in Hong Kong
- Assess the potential for traditional infrastructure project management strategies, techniques and tools to effectively and efficiently handle forthcoming ‘3R projects’ in Hong Kong; and identify any shortcomings thereof
- Develop a framework for (and examples of) potentially useful management strategies and techniques, organisational and contractual structures, and managerial skill-sets and mind-sets needed to address the shortcomings identified in Objective 3, as well as to achieve the performance levels identified in Objective 2 above
- Formulate a well-structured RD&D (Research Development and Dissemination) agenda, including detailed objectives, research plan and methodology in respect of the items identified in Objective 4 above



Public Private Partnership in Infrastructure Development (PPPID)

Investigators

- Prof. M.M. KUMARASWAMY & Dr. Jacky K.H. CHUNG

Background

- Steadily growing demands for PPP (Public Private Partnership) in both developed and developing countries have been further fuelled by recent financial upheavals. The latter have forced Governments to enter into hitherto unexpected partnerships with the private sector in many areas. This research project will focus on how best to mobilise cost-effective and high-performing PPPs for infrastructure development.
- Revisit and rethink PPP based on past lessons learned, as well as present and potential imperatives.
- Also, participating in International projects – e.g. ‘P3T3 COST’ project in Europe and ‘Water Governance Project’ led from NUS; and also with CIB TG72



Public Private Partnerships in Infrastructure Development (PPPID)

Aim

- develop methodologies and tools for :
 - (i) more realistic appraisals of potential PPPs, and
 - (ii) achieving higher ‘overall success’ levels in projects chosen for PPP.

Scientific merit

- lies in the formulation and execution of independent academically rigorous inquiry into the various underpinning and emerging issues that require addressing and balancing in infrastructure engineering and sustainable development: e.g. socio-economic and environmental concerns, alongside technological, financial, contractual and performance-related priorities.



Relationally Integrated Value Networks for Total Asset Management (TAM)

Investigators

- Prof. M.M. KUMARASWAMY, Dr. Gangadhar MAHESH, Dr. Florence LING (NUS) and Dr. Hedley SMYTH (UCL)

Objectives

- Identify cross supply chain synergies between IPM (Infrastructure Project Management) and IAM (Infrastructure Asset Management) that can be achieved through collaboration; and map present and potential transactional and relational forces within and between their current respective supply chains
- Visualise and formulate a relationally integrated value network for TAM (Total Asset Management)
- Develop a framework for (and examples of) potentially useful management strategies and techniques, organisational and contractual structures, and managerial skill-sets and mind-sets, as needed to develop and sustain a relationally integrated value network for TAM



Some ongoing/ recent Student Research Projects

1. Securing Payment in the Mainland China Construction Industry: the Problems of Payment Arrears and Their Remedial Measures
2. Relationship Management in PPP Infrastructure Projects
3. Integrative Approach to Addressing Societal Needs in Infrastructure Development Projects
4. Integrated Whole Life Cycle Value Framework for Infrastructure Megaprojects
5. Industrial Management Approaches for Reducing Critical Production Wastes in HK Building Services Works
6. A Negotiation Model for Consensus Building in Construction Related Public Participation Process
7. Public Private Partnerships in Global Infrastructure Megaprojects in Emerging Economies



Relationship Management in PPP Infrastructure Projects

Investigator

- Mr. Joe Weiwu ZOU (h0795449@hku.hk)

Objectives:

- This research aims to set up a systematic and practical relationship management framework to manage the relationship of public and private sector in a proactive way.

Works done

- Examined current RM practice in PPP
- Investigated the relationship between public and private sectors.
- Developed a conceptual framework for RM in PPP infrastructure projects.



Integrative Approach to Addressing Societal Needs in Infrastructure Development Projects

Kelwin K.W. Wong, PhD Candidate (kelwin.wong@hku.hk)

Objective:

- This research aims to investigate: i) how societal needs can be better integrated into infrastructure planning and development in Hong Kong; and ii) how ideas and input from society can be better managed, shared and applied to other infrastructure development projects

Interim Findings:

- Hong Kong is relatively inexperienced in public engagement
- Public consultation reports are composed and published, but how public needs will be incorporated into projects are often unclear
- An engagement event was conducted with young professionals, secondary school and university students in collaboration with an NGO and a survey was conducted – many are aware of public consultation events but few actually participated



Integrated whole life cycle value evaluation framework for infrastructure megaprojects

Investigator

- Ms. Brenda H.B. XIE (h0995075@hku.hk)

Objectives:

- The aim of this research is to improve project evaluation by establishing a whole life cycle value (WLCV) based evaluation framework for clients.

Findings to date

- Identifying common evaluation problems in Hong Kong
- The concept of project WLCV (involving two dimensions : time and people) and it is feasible and useful to integrate this concept into project evaluation process.
- A four stages (Client requirements, design & construction, operation & maintenance and re-use / demolition) framework to explain how to conduct WLCV project evaluation step by step.



A Negotiation Model for Consensus Building in Construction-Related Public Participation Process

Investigator

- Terry, H. Y., Li (hongyangli@yahoo.cn)

Research Aim

- To facilitate the consensus building process among different groups of project stakeholders involved in the participatory activities for infrastructure and construction projects by establishing a comprehensive, flexible and applicable negotiation model

Findings to Date

- -The current level of participation in PIC projects is quite limited, particularly in the crucial earlier stages, primarily due to traditional culture and values, uneven progress in the adoption of participatory mechanisms, the risk of not meeting targets and lack of confidence in public competence.
- -The interests of various stakeholders (including government / project initiators, general public/end users, pressure groups and project affected people) vary and most of the time are conflicting.



Public-Private-People Partnerships (4P) for Disaster Preparedness, Mitigation and Post-disaster Reconstruction

Investigator

- Ms. Zhang Junqi



Public Private Partnerships in Global Infrastructure Megaprojects in Emerging Economies

Investigator

- Mr. Ricardo RAMIREZ (raramirezp@gmail.com)

Research objectives

- (i) To examine the types of Global PPPs (OM, DBO, DBFO, BOT, BOO, BOOT) implemented so far in Emerging Economies: What was the criteria utilized by stakeholders to choose an specific type of PPP?
- (ii) To look into the Critical Success Factors/Barriers for such Global PPPs in emerging economies. Specifically the following:
- (iii) To understand the institutional conflicts that arise in Global PPPs due to differences in terms of rules, norms and values.
- (iv) To assess the potential of implementing Global PPPs in the selected countries.

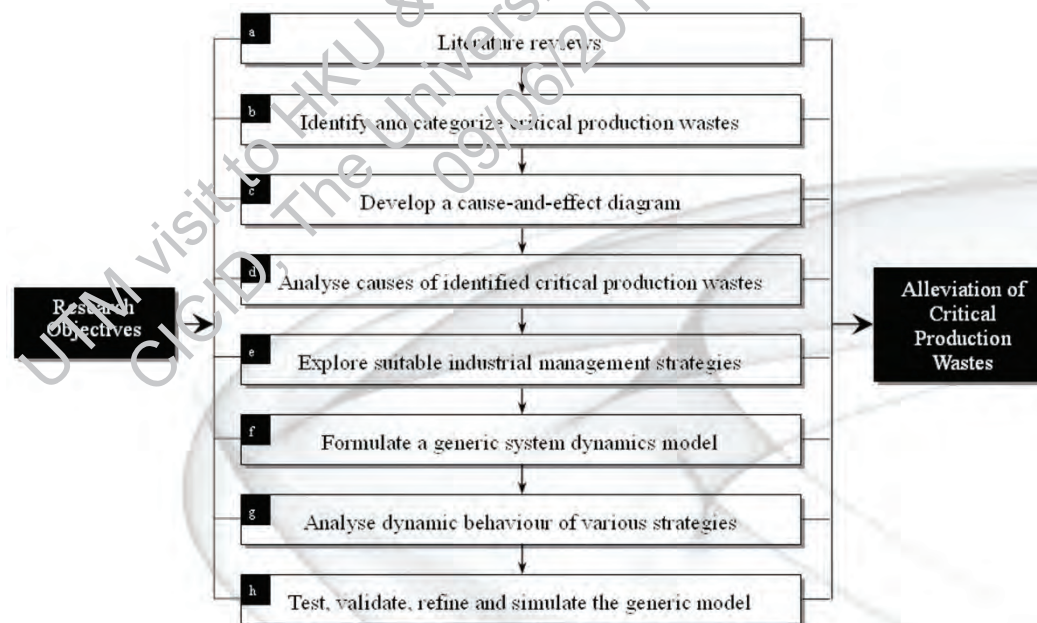


Industrial Management Approaches for Reducing Critical Production Wastes in HK Building Services Works

Investigator

- Mr. Sammy K. M. WAN (sammywan@atal.com.hk)

Research objectives and paradigm:



Industrial Management Approaches for Reducing Critical Production Wastes in HK Building Services Works

Findings to date

- Critical production wastes at different stages of construction processes in the building services sub-sector were identified and analyzed.
- Cause-and-effect diagram of critical production wastes was developed.
- Appropriate industrial management strategies such as dynamic coordination buffering, storage principles, material tracking system, mistake proofing and hybrid push-pull mechanism were proposed and elaborated.
- A generic dynamic systems model of building services project was developed.
- Various strategies were simulated using the generic dynamic systems model and recommendations were made for effectively reducing critical production wastes.



Securing Payment in the Mainland China Construction Industry: the Problems of Payment Arrears and Their Remedial Measures

Investigator

- Mr. Jin WU (wujinhku@hku.hk)

Objectives:

- This research aims to contribute to the understanding of the problem of payment arrears and measures addressing them in the construction industry, especially in Mainland China.

Findings to date

- Peculiarities of the problem in Mainland China
- It is strategic choices by both clients in deciding whether to be opportunistic and contractors in how to response, which are decided by their gain-loss expectations under different conditions
- A micro-level theoretical framework to explain why the problem arises, and how different remedial measures (in developed jurisdictions and Mainland China) are expected to address/prevent the problem



The Centre for Infrastructure & Construction Industry Development (CICID)

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