



THE UNIVERSITY OF HONG KONG

ProMaRC MEETING III

*Centre for Infrastructure & Construction Industry Development
The University of Hong Kong*

05 October 2010



The University of Hong Kong

- The University of Hong Kong, founded in 1911, is the oldest tertiary institution in Hong Kong



INTRODUCTION TO CICID



The Centre for Infrastructure & Construction Industry Development (CICID)

**Centre for Infrastructure & Construction
Industry Development**



**Welcome to
The Centre for Infrastructure & Construction
Industry Development**

About CICID

Welcome Message

Events & Activities

Management Committee

Research & Publications

People

About HKU

Links

Contact

Web-site Visit No.: **15776**



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This homepage is best viewed with Microsoft Internet Explorer 6 or above.

■ <http://www.hku.hk/cicid/index.htm>

CICID Objectives

- developing an internationally recognised 'Centre of Excellence' for research, discourse and dissemination of innovations in infrastructure and construction engineering & management, and construction industry development methodologies; and
- encouraging and supporting interdisciplinary research into planning, implementing and evaluating construction projects including mega/ multi-project infrastructure programmes.



Research themes

- Infrastructure Procurement innovations
- Infrastructure Management Support systems
- Performance Improvement initiatives,
- Construction Technology enhancements
- Construction Industry Development strategies



Built Environment Project and Asset Management



- Built Environment Project and Asset Management (BEPAM) provides a niche forum to **address interfaces between Project Management and Asset Management of Building and Civil Engineering Infrastructure.**
- BEPAM deliberates on, disseminates and validates cutting edge Research and Development in Construction Project Management and Infrastructure Asset Management, given the increasingly critical intersections and convergence between these domains, e.g. with increasing ‘whole life’ focus and sustainability imperatives. It connects both established and upcoming researchers with progressive practitioners in these fields and proactively links research and practitioner communities worldwide.



**ONGOING
RESEARCH
PROJECTS**



Summary

1. Construction Industry Development Comparison & Acceleration (CIDCA)
 2. Management of Infrastructure Rehabilitation Redevelopment or Revitalisation (MIRROR)
 3. Public Private Partnership in Infrastructure Development (PPPID)
 4. Securing Payment in the Mainland China Construction Industry: the Problems of Payment Arrears and their Remedial Measures
 5. A Relational Network Model for Improving PPP Performance
 6. Integrative Approach to Addressing Societal Needs in Infrastructure Development Projects
 7. Integrated Whole Life Cycle Value Framework for Infrastructure Megaprojects
 8. Industrial Management Approaches for Reducing Critical Production Wastes in HK Building Services Works
- Public Private Partnerships in Global Infrastructure Megaprojects in Emerging Economies



Construction Industry Development Comparison & Acceleration (CIDCA)

Investigators

- Prof. M.M. KUMARASWAMY, Dr. G. MAHESH & 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:

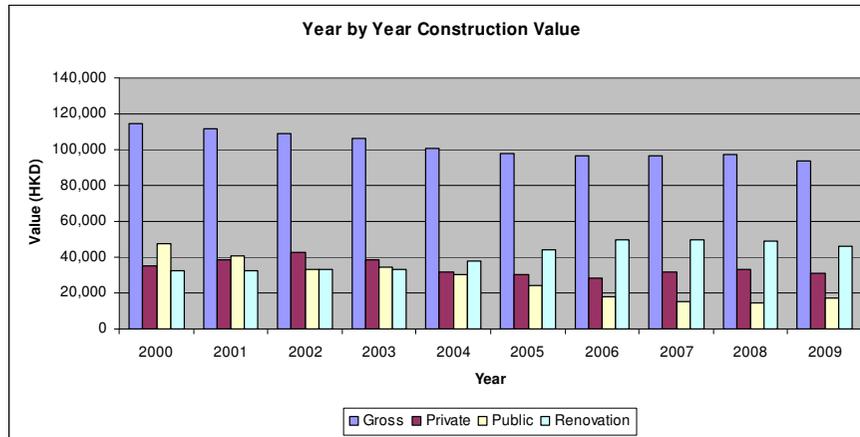
- An Independent assessment of Industry Improvement trajectories - following (but not limited to) recent high profile reform recommendations in HK

Overall Objectives:

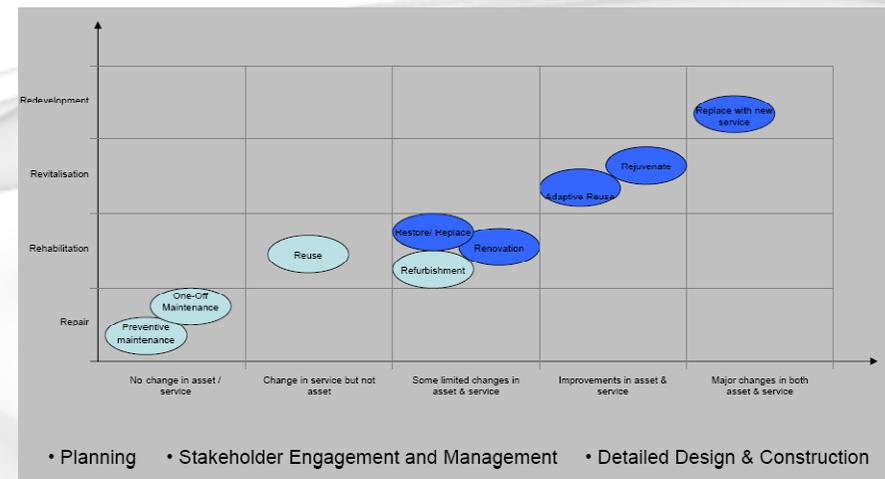
- To evaluate the effectiveness of the industry improvement programmes against their original objectives, while discounting / allowing for (i) industry development trends that may have continued even without reform inputs and (ii) changing aspirations, priorities and concerns
- To unravel reasons for 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.



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
- 3. 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.



Public Private Partnership 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.



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

Investigator

- 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.



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

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 arise, and how different remedial measures (in developed jurisdictions and Mainland China) are expected to address/prevent the problem



A Relational Network Model for Improving PPP Performance

Investigator

- Joe Weiwu ZOU (h0795449@hku.hk)

Objectives:

- to analyze (a) the relationships between public & private sectors; and (b) how these various parties will act, react and perform overall, when encountering special issues and risks;

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A Relational Network Model for Improving PPP Performance

- to identify typical interdependent connections, linkages and relationships between organizations in PPP projects; and to analyze the strengths of these linkages;
- to describe, and evaluate the critical issues and challenges associated with those connections, linkages and relationships in PPP projects;
- to develop a relational model between Public governments and SPV (consortium) for PPP projects that can help to understand and improve PPP performance levels.



Integrative Approach to Addressing Societal Needs in Infrastructure Development Projects

Investigator

- Kelwin Wong (kelwin.wong@hku.hk)

Objectives:

- Identify current shortfalls in addressing societal needs in infrastructure development projects in Hong Kong
- Determine the most effective methods or combination of methods for: i) acquiring stakeholder (including public) feedback; ii) establishing knowledge transfer and generating social capital; and iii) assessing and incorporating societal needs into infrastructure development projects



Integrative Approach to Addressing Societal Needs in Infrastructure Development Projects

- Compile a set of recommendations and sample resources for improving construction industry practices to enhance societal benefits
- Develop an integrative approach to knowledge exchange and stakeholder engagement, in order to better address societal needs in infrastructure development projects



Integrated Whole Life Cycle Value Framework for Infrastructure Megaprojects

Investigator

- Brenda, Hong-bo XIE (h0995075@hku.hk)

Objectives

Identify the key stakeholders
and their value objectives

Derive a WLCV model

Identify the barriers to
achieve the optimal WLCV

Compare the WLCV between PPP
projects and other kind of projects

Formulate and validate a
practical framework

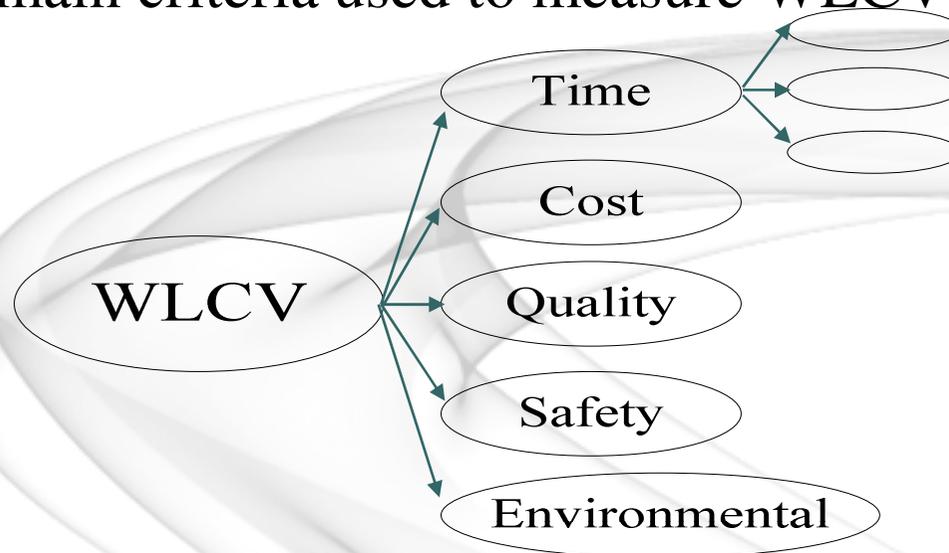


Integrated Whole Life Cycle Value Framework for Infrastructure Megaprojects

- What is whole life cycle value?



- What are the main criteria used to measure WLCV?

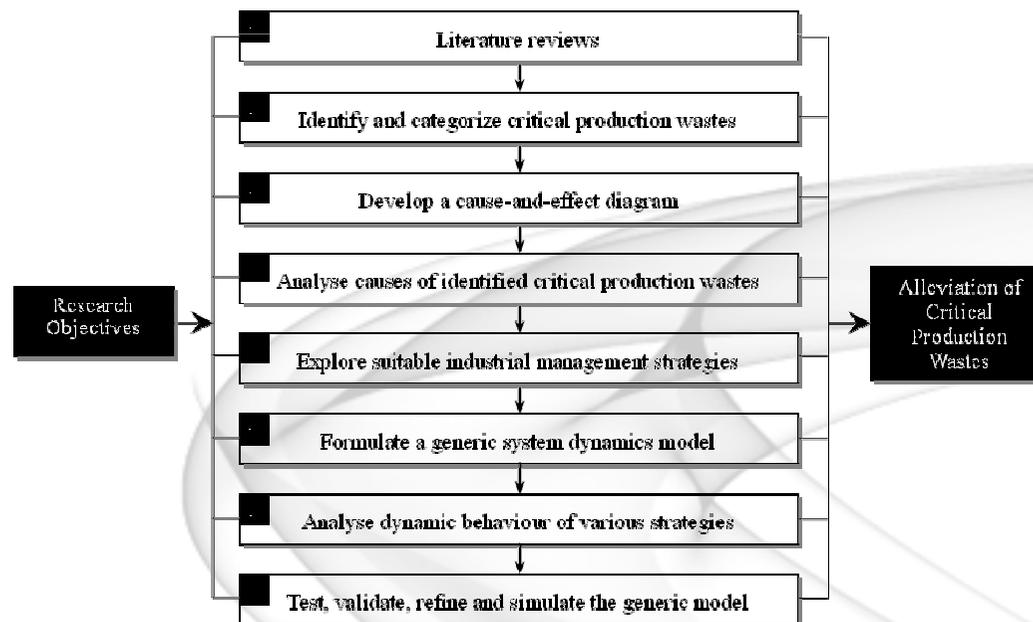


Industrial Management Approaches for Reducing Critical Production Wastes in HK Building Services Works

Investigator

- 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.



Public Private Partnerships in Global Infrastructure Megaprojects in Emerging Economies

Investigator

- Ricardo RAMIREZ (raramirezp@gmail.com)

Research scope

- Countries: Colombia, Indonesia, Vietnam, Egypt, Turkey, South Africa.

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?



Public Private Partnerships in Global Infrastructure Megaprojects in Emerging Economies

Research objectives

- (ii) To look into the Critical Success Factors/Barriers for such Global PPPs in emerging economies. Specifically the following:
 - PPP Risks: Risk identification. Risk allocation.
 - Government Roles and Responsibilities.
 - Concessionaire Selection: Tendering Process. Concessionaire Selection Methods and Criteria.
 - PPP Finance: Financing Strategies. Government Support.
- (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.



Enquiry

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