Management of Infrastructure Rehabilitation, Redevelopment or Revitalisation (MIRROR) –

Summary of Research Findings

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Significance of ‘3R Projects’

Year by Year Construction Value

- Gross
- Private
- Public
- Renovation

Value (HKD)

Year

Year

2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Objectives - Summary

1. Identify **specific characteristics** and **challenges** of ‘3R projects’ vis a vis new infrastructure; that warrant special consideration by Project Managers in general

2. Unveil **special risks**, **typical performance criteria** and **critical success factors** for ‘3R projects’ in Hong Kong

3. Assess the potential for **traditional infrastructure project management strategies, techniques and tools** to handle forthcoming ‘3R projects’ in Hong Kong; and identify any shortcomings

4. Develop a **framework for (with examples)** of management strategies & techniques, organisational & contractual structures, and managerial skill-sets and mind-sets to address shortcomings and achieve required performance levels

5. Formulate a well-structured **RD&D (Research Development and Dissemination) agenda**, to move forward with above framework
Classification

- Planning
- Stakeholder Engagement and Management
- Detailed Design & Construction
Hong Kong’s ‘3R’ Sector

- Unregulated till recent times
- Predominantly small scale contractors; especially in building works
- Prone to safety hazards
- Large 3R works governed similarly to ‘new-build’ works
- Smaller works governed by ‘minor-works control system’ - launched recently
- Minor works contractor registration scheme – to provide entry barrier - for sector improvement
Challenges of ‘3R’ Projects: Planning Stage

• Information availability and accuracy
• Asset in use - constraints
• Constructability issues and asset capacities
• Difficulties in preparing accurate estimates and timeframes
• Meeting the updated statutory codes and standards
• Outlining the scope of works
• Standardisation
• Meeting sustainability objectives and contingency planning
Challenges of ‘3R’ Projects: Detailed Design & Construction stage

- Material matching and technology upgrades
- Resource intensive
  - Time constraints
  - Logistics constraints and difficulties in mechanising
  - Higher Co-ordination levels required
- Difficulties in sourcing materials and skilled labour
- Spatial constraints
- Minimising asset downtime and mitigating nuisance to users and stakeholders
Stakeholder Engagement & Management

Key Challenges:

• Rehabilitation plan for existing users
• Meeting stakeholder value objectives & consensus building

Critical Success Factors:

• Early involvement of stakeholders
• Sense of ownership of the project
Critical Success Factor for ‘3R’ Projects: Planning Stage

- Holistic Approach to design
- Clear time horizon
- A thorough initial evaluation of the asset
- Clear and absolute brief
- Early involvement of contractors
- Knowledgeable and involved client
- Simplified and flexible regulatory environment
Critical Success Factor for ‘3R’ Projects: Detailed Design & Construction

• Previous experiences in managing similar projects and flexibility to react to endemic uncertainties
• Appropriate project team
• A systematic and realistic construction execution plan and schedule
• Quick RFI turnaround time and efficient change management systems
• Efficient co-ordination
• Just-in-time procurement planning
Typical Performance criteria

- Asset utilisation and life enhancement
- Return on investment
- Accuracy of estimates
- Asset down time
- Minimisation of adverse nuisance to users and other stakeholders
- Safety
- Wastage
- Rework
Strategies to Improve Management of ‘3R’ Projects

- An independent project coordinator
- Framework agreements for clients with large no. of assets under management
- Long term collaborative contracts to eliminate ‘build & go’ mentality
- BIM models for spatial co-ordination and simulation
- Updated and freely available databases of building inspection information
- Skills improvement programme for workers in the sector
Conclusions

• Similar to ‘new-build’ projects but with higher uncertainties and limited information

• Risk management, co-ordination levels and stakeholder engagement and management levels required are intense

• Traditional project management strategies sufficient but with enhanced project control systems

• Establishing relational network between ‘building’ and ‘operations’ phase to mitigate ‘build & go’ mentality
Failure to mitigate ‘Build & Go’ Mentality

How should one build relational networks between ‘building’ and ‘operations’ phase?
Topic for Discussion 2

Simplified and Flexible regulatory environment

Is it appropriate?