

A conceptual model for overcoming the challenges of mega construction projects in developing countries

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ABSTRACT

The development of Mega Construction Projects (MCPs) in developing countries is a two-edged dilemma. On the one hand, MCPs require high design knowledge and technical skills, competent human resources and managerial capabilities as well as high cost investment. On the other hand, developing countries have shortage in many of these requirements, which obstructs the development of MCPs. This paper aims to develop a conceptual model to overcome the challenges of MCPs development in developing countries. To achieve the aforementioned aim, theoretical and practical approaches were adopted to accomplish three objectives. Firstly, literature review examined the characteristics of developing countries, MCPs and challenges of delivering MCPs in developing countries; secondly, presenting an innovative model, developed by the author, to overcome the challenges of delivering MCPs in developing countries; and finally, summarising research conclusions and recommendations necessary to facilitate the development of MCPs in developing countries. MCPs are essential means for achieving sustainable development objectives in developing countries. However, lack of knowledge, experience and skills needed to develop such projects has hindered the development of MCPs in developing countries. This topic is new to construction literature; hence, many areas of megaprojects management remain largely uncharted such as challenges and solutions of their delivery in developing countries. This study focuses on developing a conceptual model to overcome the challenges of MCPs in developing countries especially with low to lower middle income and low to medium human development. This is because these countries are in dire need for MCPs. Through adopting and implementing the strategies and action plan of the developed model, the research presents a practical solution to improve the capacity of developing countries towards overcoming the challenges of MCPs development. This paper presents an innovative conceptual model to improve the capacity of developing countries as an approach for overcoming the challenges of MCPs development. This ideology is a new area of research in construction management. The developed model represents a synthesis that is novel and creative in thought and adds value to the knowledge in a manner that has not previously occurred.

Keywords: Model, challenges, mega construction projects, sustainable development, developing countries.

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INTRODUCTION

About 85.4% of the world's population lives in developing countries (Human Development Report, 2011). These countries are characterised with: (1) low level of education and training and outflow of best brains, (2) corruption and political instability, dearth of capital, outdated technology and low production levels, (3) poor health care, low life expectancy and high growth rate of

population, and (4) difficulties related to social, demographic and culture (Economic Concepts, 2013; Connexions, 2012; Kumar, 2012; Economics, 2010; Bobrova and Kalvina, 2004; Fry, 1998). Governments in developing countries are concerned with developing MCPs as an approach for achieving sustainable development objectives (Zeybek and Kaynak, 2006;

Table 1. Classification of Countries according to their GNI per capita,

Low income countries	GNI \leq US\$ 1,025 per capita
Lower middle income countries	GNI = US\$ 1,026 - US\$ 4,035 per capita
Upper middle income countries	GNI= US\$ 4,036 - US\$ 12,475 per capita
High income countries	GNI = US\$ 12,476 and above per capita

Cohen, 2006). These objectives are accomplished through providing societies with places for housing, education, culture, medication, business, leisure, entertainment as well as constructing urban infrastructure such as water and power supply, sewerage, drainage, roads, ports, railways and telecommunications projects, to name a few (Othman, 2012; Khan, 2008; Mthlane et al., 2007; Field and Ofori, 1988).

The development of MCPs in developing countries is a two-edged dilemma. On the one hand, MCPs are complex and risky undertakings that require high design knowledge and technical skills, competent human resources, professional managerial capabilities and large-scale investment (Sturup, 2009; Frick, 2006; Flyvbjerg et al., 2003). They are normally commissioned by governmental authorities and delivered by multi-skilled national and international participants (Shore and Cross, 2005). Due to their substantial cost, direct and indirect impact on the community, environment, and budgets, MCPs attract high levels of public attention and political interest (Van Marrewijk et al., 2008; Capka, 2004). Conversely, developing countries have shortage in many of these essential requirements, which obstructs the development of MCPs.

Because of the importance to support governments in developing countries achieving national sustainable development objectives, delivering successful MCPs, improving national capacity and overcoming the scant attention paid to this topic in construction literature, this article aims to develop an innovative model to overcome the challenges of MCPs development in developing countries.

METHODOLOGY

The research methodology consists of theoretical and practical approaches designed to achieve three objectives: firstly, reviewing literature to investigate the characteristics of developing countries, MCPs and challenges of delivering MCPs in developing countries; secondly, developing a conceptual model to overcome the challenges that hinder the development of MCPs in developing countries; lastly, outlining research conclusions and recommendations to facilitate the delivery of MCPs in developing countries.

The developed model presented in this paper is the second phase and continuation of a research conducted by the author to investigate the challenges of MCPs in

developing countries (Othman, 2013).

CHARACTERISTICS OF DEVELOPING COUNTRIES

The distinction between countries as developed or developing is, generally based on certain criteria including: (i) economic development, (ii) education and training provision, (iii) political stability, technological development, infrastructure and production rate, (iv) healthcare, life expectancy and growth rate of population, and (v) society, demography and culture issues. The World Bank (2012) classifies countries into four income groups according to their Gross National Income (GNI) per capita. The countries that have low, lower and upper middle-income are classified as developing countries (Table 1).

In addition, the Human Development Index (HDI) (Human Development Report, 2011), recently developed by the United Nations, gauges the level of human development of countries as shown in Table 2.

In addition to the above classifications, Table 3 summarises the other characteristics of developing countries.

CHARACTERISTICS OF MCPs

Different terms are used to describe MCPs such as large projects, complex projects, major projects, giant projects, new animals and megaprojects (Ruuska et al., 2009; Grun, 2004; Flyvbjerg, et al., 2003). MCPs are huge investment projects developed to support governments achieving national and international sustainable development objectives (Van Marrewijk et al., 2008; Capka, 2004). These projects are normally owned by governments and executed by large construction firms. In addition, MCPs are risky developments that consume substantial amount of time, cost and requires highly skilled design, construction and managerial teams. Table 4 concludes the characteristics of MCPs.

CHALLENGES OF MCPs IN DEVELOPING COUNTRIES

The topic of MCPs is a new area of research in construction management (Brockmann and Girmscheid, 2007). In addition, the interest of the research community

Table 2. Classification of countries according to their HDI.

Low human development	HDI below 0.500	18% of the world's population
Medium human development	HDI = 0.500 – 0.799	52% of the world's population
High human development	HDI = 0.800 - 0.899	30% of the world's population
Very high human development	HDI = 0.90 and above	

Table 3. Characteristics of developing countries.

Characteristics related to education, training and brain drain

1. Low standard of education and vocational training
2. Out flow of best brains (Connexions, 2012; WDR, 2012; Kumar, 2012; Economics, 2010; Kintu, 2008)

Characteristics related to policy, economy, technology, infrastructure and production

1. Corruption and political instability
2. Lack of capital and technology
3. Dualistic economy
4. Vicious Circle of Poverty
5. Low levels of productivity
6. Inequalities of national income distribution
7. Inadequate infrastructure
8. Heavy dependence on agricultural production
9. External resources dependence
10. Lack of industries and enterprises
11. Underutilized natural resources
12. High and rising levels of unemployment and under-employment (Economic Concepts, 2013; Connexions, 2012; Kumar, 2012; Economics, 2010; Bobrova and Kalvina, 2004; Fry, 1998)

Characteristics related to health care, life expectancy and growth rate of population

1. Poor health care
2. Low life expectancy
3. High rates of population growth and dependency burdens (Economic Concepts, 2013; WDR, 2012; Connexions, 2012; Kumar, 2012)

Characteristics related to Society, Demography and Culture

1. General and social backwardness
 2. Demographic characteristics
 3. Socio-cultural characteristics (Economic Concepts, 2013; Bobrova and Kalvina, 2004)
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in megaprojects has begun to grow. For instance, the International Journal of Project Management published a special issue on "Complexities in Managing Mega Construction Projects" in October 2011. Moreover, Organization, Technology and Management in Construction: An International Journal published a special issue on "Megaproject Management" in December 2012. Accordingly, many areas of megaproject management remain largely uncharted such as challenges and solutions of their delivery in developing countries. A recent paper by Othman (2013) conducted a comprehensive study on the challenges of MCPs in developing countries. The research was based on extensive literature review and analysis of 36 case

studies of MCPs (either completed, under development, on hold or cancelled) in developing countries. The result was a list of 45 challenges. Based on their nature, the identified challenges were classified into four categories (Figure 1, Table 5).

Conceptual model for overcoming the challenges of MCPs development in developing countries
Model rationale and components

Analysis of literature review revealed the importance of MCPs as an approach for achieving sustainable

Table 4. Characteristics of MCPs.**Characteristics related to project nature, objective, location, time, cost, and risk**

1. Colossal in size and scope physical infrastructure / capital asset with a life span measured in decades in order to plan, design, finance and build (Sanderson, 2012; Sturup, 2009; Frick, 2006; Bruzelius et al., 2002)
2. Located in remote and/or inhospitable areas (Flyvbjerg, et al., 2003; Haynes, 2002)
3. Costly and often under estimated projects that require high investment expenditures of:
 - i) US\$1 billion or more (Sturup, 2009; Frick, 2006; Flyvbjerg, et al., 2003; Bruzelius et al., 2002).
 - ii) £150 million as a bench mark cost (Sturup, 2009).
 - iii) EUR 0.5 billion and more (Megaproject Cost Action, 2012).
4. Controversial and often have financing difficulties (Sturup, 2009; Frick, 2006; Haynes, 2002)
5. Risky undertakings, especially when:
 - i) project priorities and objectives changed (Ruuska et al., 2009).
 - ii) project extends over its economic cycles (Jia et al., 2011; Little, 2011).
 - iii) shortage of labour and suppliers (Haynes, 2002).
 - iv) lack of planning and cost estimate (Keegan, 2004; Bruzelius et al., 2002).
 - v) poor technology and traditional delivery methods (Jia et al., 2011; Little, 2011)

Characteristics related to client(s) and performing organisation structure

1. The client is often a government or public sector organisation
2. The main contractor or consortium of contractors are usually privately owned, financed and often from various countries with variety of cultural differences, backgrounds, political systems, and languages, seeking success with different objectives (Kardes et al., 2013; Sanderson, 2012; Ruuska et al., 2009; Shore and Cross, 2005; Haynes, 2002).
3. Complex management structure and the matrix and project organisational forms are used interchangeably (Kerzner, 2006; Stoddart-Stones, 1988).
4. Insufficient experience of performing organisation in managing complex undertakings (Keegan, 2004; Haynes, 2002)
5. Continuous organizational restructuring may be necessary as each project goes through a different life-cycle phase (Kerzner, 2006)
6. The performing company often retains an ownership stake in the project after completing the construction phase in a special purpose vehicle and is paid by the client for the service that flows from the asset's operation or use over a number of years (Sanderson, 2012).

Characteristics related to engineering design and technical requirements

1. Complex projects that demand high design knowledge, professional technological skills and logistical support
2. Necessitates multidisciplinary contributions from various organizations (Sturup, 2009; Frick, 2006; Flyvbjerg, et al., 2003).
3. Long termed projects that require program planning, control and highly trained employees especially in the field of Project Management
4. Requires clearly defines rules and procedures as well as effective communication at all levels
6. Requires quality front-planning (Sturup, 2009; Kerzner, 2006).
7. Projects' captivation due to their size, engineering achievements and aesthetic design call for virtual enterprise for the implementation of the project through exploiting fast-changing opportunities and confronting problems as early as possible (Sturup, 2009; Frick, 2006; Flyvbjerg, et al., 2003).

Characteristics related to environment, society, economy and policy

1. Public acceptance / opposition due to the social, economic, political and environmental impacts (Ruuska et al., 2009; Haynes, 2002)
2. Politics are playing an important role in how senior management appointments and activities are defined (Haynes, 2002; Stoddart-Stones, 1988).
3. Poor risk analysis and inappropriate identification of the project consequences (Hopkinson, 2007).

development objectives in developing countries and concurrently highlighted the challenges and shortage of skills and resources needed to develop these projects. Hence, it becomes essential to develop a conceptual

model to improve the capacity of developing countries to overcome the challenges of MCPs. The developed model consists of two components, namely strategies and action plan. Strategies are directed towards improving the

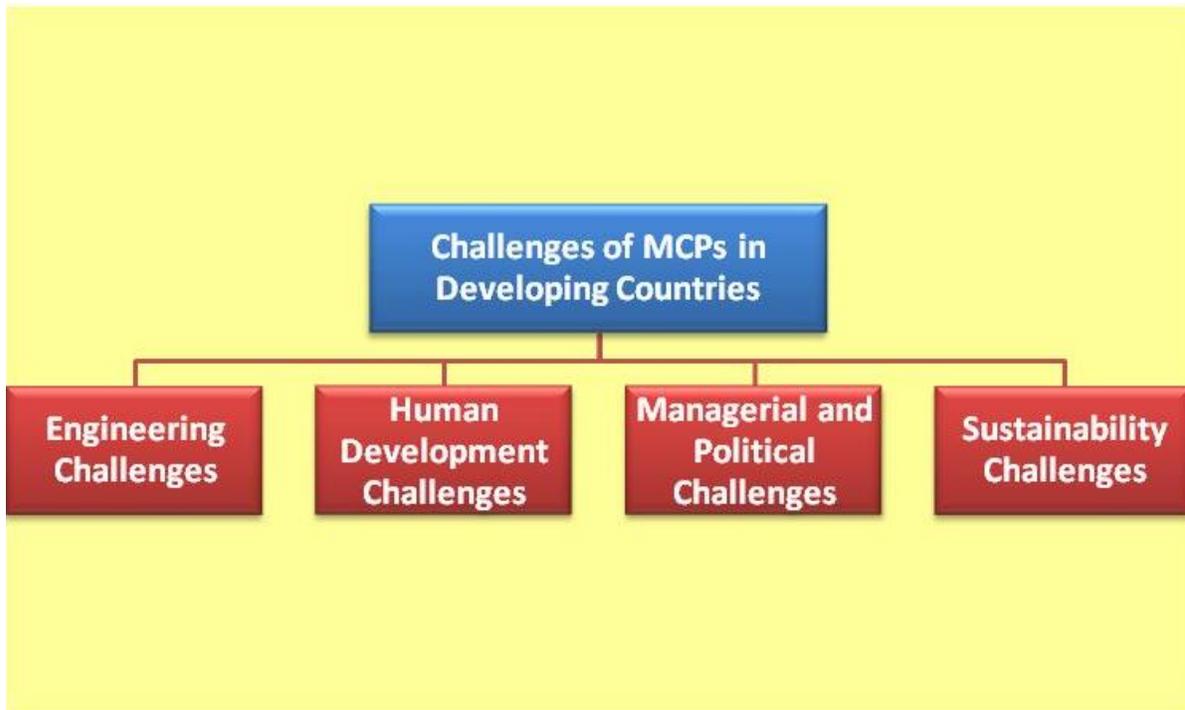


Figure 1. Challenges of MCPs in developing countries.

Table 5. Challenges of MCPs in Developing Countries (Othman, 2013).

MCPs challenges	Source		Engineering challenges		Human development challenges	Managerial and political challenges		Sustainability challenges		
	From literature review	From case studies	Design	Technical		Managerial	Political	Environmental	Social	Economical
1	Lack of design knowledge and experience related to (MCPs) (Georgieva, 2012; Deputy, 2011)	*	*	*						
2	Lack of professional expertise and full consideration of technical requirements (Georgieva, 2012; Deputy, 2011)	*	*		*					
3	Misunderstanding and partial achievement of project objectives (Georgieva, 2012)	*		*		*				
4	Lack of financial resources, cost control and venture capital (Al-Maghraby, 2012; Georgieva, 2012; Jia et al., 2011; Witular, 2009)	*	*			*				*
5	Lack of research capacity and business innovation (Georgieva, 2012)	*			*	*				
6	Missing Intermediary bodies (Georgieva, 2012)	*				*			*	
7	Unfavourable regulatory framework (Georgieva, 2012)	*				*				
8	Lack of providing and managing high-qualified human resources (Georgieva, 2012; Baloyi and Bekker, 2011; Koen and Theron, 2008)	*	*		*					

Table 5. Continues.

9	Bureaucracy and corruption practices (Al-Maghraby, 2012; Georgieva, 2012)	*	*			*	*
10	Lack of political support (Al-Maghraby, 2012; Georgieva, 2012; Merco Press, 2013)	*	*				*
11	Difficulty resourcing the right skills and matching with project demands and geography (Procaccini et al., 2012; Baloyi and Bekker, 2011)	*	*			*	
12	Lack of experienced staff to accept critical roles which they are not prepared for (Procaccini et al., 2012; Koen and Theron, 2008)	*	*			*	*
13	Governance decisions fail to strike a balance between short- and long-term objectives and effective risk mitigation (Procaccini et al., 2012)	*	*			*	
14	Improper identification and engagement of various stakeholder groups in the early project phases (Procaccini et al., 2012)	*	*			*	*
15	Tight service market and lack of internal capacity (Procaccini et al., 2012)	*				*	*
16	Improper implementation of project management processes and training of key project staff (Procaccini et al., 2012; Hussein and Karimin, 2006)	*	X			*	
17	Lack of available on-site skilled workers or local labour forces (Baloyi and Bekker, 2011; Kerzner, 2006)	*	*			*	
18	Lack of properly trained on-site supervisors (Koen and Theron, 2008; Kerzner, 2006)	*	*			*	*
19	Huge numbers of people and organisations of different specialties involved in mega projects development (Kerzner, 2006)	*				*	*
20	Ill-defined rules and procedures as well as inappropriate use of prior experience to review contingencies (Kerzner, 2006)	*			*	*	
21	Inadequate communication at all levels and poor coordination interface management between project stakeholders (Toor and Ogunlana, 2006; Kerzner, 2006)	*	*			*	*
22	Lack of quality front-end planning (Kerzner, 2006)	*			*	*	
23	Improper decision making and overlooking specialists and stakeholders consultation during the decision making process (Jia et al., 2011; Toor and Ogunlana, 2006; Kerzner, 2006)	*	*	*	*	*	
24	Lack of construction material availability (Tenah, 1985)	*		*	*	*	
25	Ignorance of health and safety considerations as well as the absence of activating health and safety acts (Othman, 2012)	*	*			*	*
26	Weak governance of project management (Hopkinson, 2007; Hussein and Karimin, 2006)	*	X			*	
27	Political imperatives and authority misuse (Hopkinson, 2007; Toor and Ogunlana, 2006)	*	*			*	*
28	Lack of exploiting uncertainties (Hopkinson, 2007)	*				*	
29	Project authorisation pressures on individuals (Hopkinson, 2007)	*				*	
30	Failure to invest sufficiently before the project's main authorisation point (Hopkinson, 2007)	*				*	*
31	Unachievable targets cause sub-optimal project outcomes (Hopkinson, 2007)	*				*	

Table 5. Continues.

32	Lack of efficiency and effectiveness of the Project Management process (Hopkinson, 2007; Hussein and Karimin, 2006)	*	*			*		
33	Naïve risk analysis and inappropriate identification of the project consequences (CBC News, 2012; Hopkinson, 2007)	*	*			*	*	*
34	Inappropriate behaviour of the client organisation (Altman, 2005) and absence of national policy to resettlement of affected people	*	*			*		
35	Lack of considering environmental requirements, preserving historical sites, and natural reserve (Walta info, 2013; UNESCO, 2012; Hernandez, 2012; Fearnside, 2006; Best and De Valence, 1999)	*	*			*	*	
36	Ineffective project management and poor use of experience and competency of client and contractor organisations (Hussein and Karimin, 2006)	*	*	*	*	*		
37	Lack in managing complexities of work content and work processes (Hussein and Karimin, 2006)	*	*		*	*		
38	Lack of strategic project planning and ineffective leadership (Hussein and Karimin, 2006)	*	*		*	*		
39	Leadership problems (Merco Press, 2013; Al-Maghraby, 2012)	*	*			*		
40	Lack of managing social project complexity (Brockmann and Girmschied, 2007)	*						*
41	Lack of managing cultural project complexity (Brockmann and Girmschied, 2007; Othman et al., 2004)	*	*					*
42	Inappropriate level of scientific and technological knowledge and application required (Jia et al., 2011; Deputy, 2011)	*	*	*	*	*		
43	Lack of providing quality education and professional training programmes (Baloyi and Bekker, 2011; Naidoo et al., 2009)	*	*			*	*	
44	Political tension between countries (GAP, 2011)	*	*			*		
45	Stakeholders change project requirements at later stages of the project life cycle (Othman et al., 2004)	*	*	*	*	*		

qualifications of developing countries towards MCPs development, where the action plan is designed to assist governments and decision makers to implement the developed strategies.

Strategies for improving the qualifications of developing countries towards MCPs

Strategies for education, training and brain drain

Providing quality education and vocational training is a key driver for building national capacity and equipping human resources with state-of-the-art knowledge and technical skills needed to overcome the engineering and human development challenges of delivering MCPs in

developing countries. Governments in developing countries have to allocate higher percentage of the countries' GDP to improve education, training, research and development related to MCPs. In addition, offering competitive packages and job opportunities will attract scientists and bright students who completed their higher studies abroad in the area of design and construction of MCPs, to return back to benefit their countries.

Strategies for policy, economy, technology, infrastructure and production

Establishing political stability, eradicating corruption, encouraging economic and technological development, constructing infrastructure facilities and increasing

productivity are essential strategies that have to be adopted by governmental authorities in developing countries to improve their situation and increase the chance of developing successful MCPs. Adopting these strategies will have positive impact on improving public morality and encouraging people to create innovative ideas that lead to growth and improvement. Moreover, implementing these strategies will encourage internal and external investment and secure financial resources needed for developing MCPs in developing countries, reduce the heavy dependency on low agricultural production and decrease the level of unemployment and increase GDP.

Strategies for health care, life expectancy and growth rate of population

Towards providing people with appropriate health care services, safe drinking water and sanitation facilities, developing countries have to fight a battle against malnutrition, diseases and poor health care. Governments in developing countries are advised to increase the percentage of GDP allocated to improve the health care sector and provide hospitals with sufficient practitioners and facilities to commensurate with the number of inhabitants to help increasing people's life expectancy, decreasing death rate of babies at birth and in early infancy. Adopting these strategies will increase the growth rate of developing countries, improve health conditions of citizens, and provide competent human resources that can accept critical roles needed for developing MCPs.

Strategies for society, demography and culture

Developing countries that are governed by military are encouraged to support democratic transition and activate the role of civil society organisations and cultural change. These strategies will help building trust between governments and their societies, and improving people's attitude towards adapting to challenges facing their countries. Moreover, these strategies will assist eradicating politicians' corruption and misuse of their power as well as reducing the frauds, dishonesty and embezzlements that are very common in governmental departments. All of which assist in overcoming the political and managerial challenges of developing MCPs in developing countries.

Action plan for implementing the strategies towards overcoming the challenges of MCPs in developing countries

The aim of this action plan is to facilitate the

implementation of the above strategies. It consists of the following steps:

- i) Diagnosing current challenge of MCPs in developing countries
- ii) Identifying and evaluating improvement opportunities and strategies
- iii) Planning and implementing improvement opportunities
- iv) Monitoring and evaluating obtained results
- v) Implementing corrective actions and closing out.

Table 6 describes the action plan including, its objectives, activities, tools and techniques, involved personnel and needed resources as well as the output of every step.

CONCLUSIONS AND RECOMMENDATIONS

Governments in developing countries are concerned with constructing MCPs as a strategic means for achieving sustainable development objectives. These objectives are attained through providing societies with projects that meet their needs and fulfil their requirements. The development of MCPs in developing countries is a two-edged problem. On the one hand, these projects require high design knowledge and technical skills, competent human resources, professional managerial capabilities and large financial investment. In contrast, developing countries have shortage in many of these requirements, which ultimately hindered the development of these essential projects. This paper presented a conceptual model, developed by the author for overcoming the challenges of developing MCPs in developing countries. The model consists of two main components, namely strategies and action plan. Firstly, strategies are developed to improve the capacity of developing countries towards MCPs development. They included strategies for improving: (1) education, training and brain drain, (2) policy, economy, technology, infrastructure and production, (3) health care, life expectancy and growth rate of population and (4) society, demography and culture. In order to facilitate the implementation of these strategies an action plan was designed. It included five steps namely: (1) diagnosing current challenge of MCPs, (2) identifying and evaluating improvement opportunities and strategies, (3) planning and implementing improvement opportunities, (4) monitoring and evaluating obtained results and (5) implementing corrective actions and closing out. Based on the above, the research comes to the following recommendations to governmental authorities:

1. Providing quality education and professional training programmes to improve the design knowledge, technical skills, decision making and managerial capabilities.
2. Improving national capacity and encouraging research

Table 6. Detailed description of the developed action plan.

Step 1	Diagnosing current challenge of MCPs
Objective	to investigate the current challenges that obstruct the development of MCPs in developing countries Studying the current status of MCPs in developing countries (either developed, under development, on hold or cancelled) Identifying the environmental, social, economic impacts of MCPs on achieving sustainable development objectives
Activities	Identifying, validating and classifying the challenges of MCPs in developing countries Conducting an orientation meeting prior to the study to establish strategic issues (study location, team, budget, resources, etc.) Gaining governmental approvals, decision makers and top management support to facilitate securing the needed resources, accepting and implementing the study decisions
Tools and techniques	Literature review Survey questionnaires Interviews Case studies Governmental, decision makers and senior management support Brainstorming and team consensus
Involved personnel and needed resources	Governmental authorities Client organisation Project managers Design and construction teams Different project stakeholders Training programmes
Output	Identified, validated and classified current challenges of MCPs in developing countries
Step 2	Identifying and evaluating improvement opportunities and strategies
Objective	To identify improvement opportunities and strategies towards overcoming the challenges of MCPs in developing countries
Activities	Identifying improvement opportunities such as education and training; human resources development; policy and management; and sustainability Generating innovative ideas to achieve the identified improvement opportunities Evaluating the generated improvement ideas
Tools and Techniques	Brainstorming and team consensus Developing technical, economic, social and time feasibility studies Cost and benefits analysis of improvement opportunities
Involved personnel and needed resources	Governmental authorities Client organisation Project managers Design and construction teams Different project stakeholders Training programmes
Output	Identified and evaluated improvement opportunities, strategies and action plans.
Step 3	Planning and implementing improvement opportunities
Objective	To plan and implement the identified and evaluated improvement opportunities

Table 5. Continues.

Activities	Developing implementation plans including time, cost, quality, human resources, communication channels, risk, health and safety, waste, etc. Securing government, decision makers and senior management support. Establishing corrective actions to adopt in case the developed plans were not executed as planned.
Tools and Techniques	Planning techniques and software Work authorization system to verify predecessor activities and permits the successor activity Performance management system
Involved personnel and needed resources	Governmental authorities Client organisation Project managers Design and construction teams Different project stakeholders Training programmes
Output	Planning and implementation plans
Step 4	Monitoring and evaluating obtained results
Objective	to monitor and evaluate the results obtained from the planning and implementation step
Activities	Measuring results against the performance measures developed earlier Identifying and evaluate causes of failure and issues that resulted in deviation from the original plans
Tools and Techniques	Change control procedures Financial controls procedures Issue and defect management procedures defining issue and defect controls, issue and defect identification and resolution, and action item tracking
Involved personnel and needed resources	Governmental authorities Client organisation Project Managers Construction teams Different project stakeholders Training programmes
Output	Action plans and corrective actions to overcome the issues raised during the development of MCPs
Step 5	Implementing corrective actions and closing out
Objective	To implement the corrective actions developed during the previous step and close out projects
Activities	Implementing corrective actions Documenting learned lessons and sharing them with government authorities, decision makers, design and construction teams and related project stakeholders Obtaining acceptance by the client to formally close the project or phase Conducting post-occupancy evaluation Closing out all procurements activities and ensuring termination of all relevant agreements Perform team members' assessment and release project resources
Tools and Techniques	Expert judgement Reporting Procurement management

Table 5. Continues.

	Governmental authorities
	Client organisation
Involved personnel and needed resources	Project managers
	Design and construction teams
	Different Project stakeholders
	Training programmes
Output	Successfully delivered MCPs in developing countries

and development in the area of MCPs in developing countries and creating solutions that suits developing countries.

3. Supplying MCPs with competent human resources that have the right knowledge and skills and be able to accept critical roles.

4. Adopting appropriate actions to increase political stability in developing countries and support to MCPs development.

5. Overcoming leadership problems and enhancing project management skills and stakeholders involvement.

6. Securing financial resources, enhancing cost control and venture capital, activating health and safety regulations and risk analysis methods.

7. Learning from other countries that developed MCPs successfully and maintaining collaboration with them at different dimensions.

8. Adopting the proposed model as an approach towards overcoming the challenges of delivering MCPs in developing countries.

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