

## A REVIEW OF PROJECT DEVELOPMENT STAGES (PLC) IN MALAYSIAN LANDSCAPE ARCHITECTURE INDUSTRY

Fatin Ariena Mohd Hanaizal  
Kuliyah of Architecture and Environmental Design  
International University Islamic Malaysia  
Email: fatinarienamohdhanazal@gmail.com

Mazlina Mansoor  
Kuliyah of Architecture and Environmental Design  
International University Islamic Malaysia  
Email: mmazlina@iium.edu.my

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### ABSTRACT

Landscape architecture profession plays an important role in the built environment projects that conserve environment especially in a cityscape. Landscape architecture profession in Malaysia was officially formed in 1981 under the name Angkatan Lanskap Arkitek Malaysia (ALAM) and now with the name Institute Landscape Architecture Malaysia (ILAM), the organization acts as an official body to manage the landscape architecture industry. The paper aims to review the process of project development in landscape architecture industry. Thus, it also identifies challenges that are faced by professionals in the field in managing the process in the local landscape architecture industry. Landscape project development can also be termed as project life cycle (PLC) in the construction industry. It is a process of planning and controlling the overall tasks or activities within the project, therefore harness resources available for the activities, e.g. people, materials, time, money, knowledge, equipment and spaces. The process consists of three important stages: (a) pre-development stage, (b) construction stage, and (c) post-construction stage. Review has suggested that the process can also be divided into more than three stages. The most significant challenge is that majority of professionals in the field are not well-verse with all the stages of work that happen in the project development. This is due to fragmented experience only in certain stages of the work, and there are no definite source of reference that they can refer to. Thus, this study is significant to documents the overall tasks in the PLC as a set of reference for the professionals. All in all, it is hoped that the research will be able to contribute to the inauguration of landscape architecture position in Malaysia by providing a set of reference that can be further implemented for practical improvement in local landscape industry.

Key words: Landscape Architecture, Landscape Development, Project Life Cycle (PLC), Built Environment.

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### 1. INTRODUCTION

Construction industry is one of the important contributors towards the physical development of the nation. According to Sadegh (2016), the industry generates income opportunities into a nation's economy by creating foreign and local investment opportunities. In addition, the Eleventh Malaysia Plan similarly highlights the importance of construction and infrastructure in bringing Malaysia to the next level in line with the vision of 2020.

However, despite these contributions, physical development also linked to the degradation of environmental quality (Jones & Greenwood, 2009). Therefore, this is where landscape architecture profession comes into action by understanding and mastering the knowledge about the natural and built environment as to ensure efficiency of construction industry and eliminate unsustainable practices and minimizing wastage. The professionals involved in the landscape construction industry should have all rounded knowledge on their scopes of practice covering all stages of work in a project's development. According to Kerzner (2001), construction project can be considered to be a set of activities and tasks that have been specified the objectives, to be completed within certain specification and involve human and non-human resources.

The paper reviews various literatures to reveal the various stages in landscape architecture project's development. It reviews the detail process of landscape project development stage and identify challenges in local landscape architecture industry to seek reference for project management and implementation in the future. Therefore, three objectives set for the reviews are: 1) to identify the process of landscape project stage, 2) to analyze the various phases of activities in the development stage of landscape project and 3) to outline the challenges in landscape architecture industry in Malaysia. A framework of project development stages (PLC) is then recommended to suit the Malaysian landscape industry.

## 2.0 REVIEW OF LITERATURE

### 2.1 Familiarity of Project Life Cycle in Landscape Architecture Industry

Apparently, there is a lack of understanding of project development stages (Project Life Cycle-PLC) among landscape architects and professionals who work in the industry. The researcher has conducted a preliminary study towards some of landscape architects in landscape construction industry. It can be concluded that, most of the respondents who work or involve in landscape architecture industry, especially those who have experience less than 3 years are not familiar with the whole process of the PLC. The cause of the issue is that not all of them are involved in all stages of the process. In relation to that, based on the literature review, it is found that the information and knowledge related to landscape architecture practices and the industry in Malaysia also is insufficiently discussed in the academic world. Thus, the lack of documented references and less years of work experience in handling projects reduce the ability of landscape professionals to be confident in handling real-life projects with other construction team (e.g. Architects, engineers). The existing knowledge from literatures are identified to be focused on the general construction project activities, rather than specifically on the landscape architecture profession and scopes of practice in the industry (Table 1). All in all, this study is expected to fill in the gap by adding to the body of the existing knowledge related to the landscape architecture industry.

Table 1: Literature Review on PLC

Author	Location	Findings
Ofer Zwikael (2008)	Australia (International)	Relative to other industrial sectors, organizations belonging to the construction sector obtain high quality of project planning and high success rate
Bastian Hanisch, Frank Linder, Ana Mueller, and Adreas Wald (2009)	New Zealand (International)	There is an intermingling of various subjective and objective preferences with in construction scholarships, rather than a broad brush adherence to the value theory and other related theories.
Bastian Hanisch, and Adreas Wald (2009)	Germany (International)	The success of project knowledge management is mainly determined by cultural factors whereas technical aspects like information systems and project management method are considered to serve as supporting factors only.
Abdul Razak Ibrahim, Matthew H. Roy, Zaraf Ahmed, Ghaffar Imtiaz (2010)	Malaysia	MCI must invest in research and development, undertake public education about field and development new methodologies to improve operational performance in construction.
Abdul Aziz Abdullah, Zakaria Harun, Hamzah Abdul Rahman (2011)	Malaysia	Malaysia Project Life Cycle (PLC) can be divided into three stage, there are i) project development stage, construction stage, post construction stage.

### 2.2 Landscape Architecture Industry

International Federation of Landscape Architects (IFLA) (1989) defines Landscape Architecture as an act of planning and designing the aesthetic layout of land use for such projects as parks and other recreational facilities. In order to design the environment, landscape architects are responsible to study the site condition holistically so the design and improvement can be executed in a well-manner without any potential harm in the near future. Besides, IFLA also reported that landscape architects are subjected to the preparation of working drawings, specifications and cost estimation for landscaping work including proper selection of plant species and other related site works in order to ensure the process of the construction are in line with the design and specification outlined.

In Malaysia, Institutional Landscape Malaysia (ILAM) represents the official body in organizing landscape architecture industry. As stated by ILAM, Landscape Architecture is a combination of art and science that will be applied in designing the environment. Regardless the size of the projects, the relationship between social and natural resources is treated importantly just the same. In brief, landscape architects one of the professionals in a project's team, who play an important role in addressing environmental and sustainable issues including climate change, sustainable community, as well as deciding the quality of the land use. Therefore, the mission of ILAM is to advance Landscape Architecture profession and raise the visibility of the professionals through advisory support to both public and private sector.

### 2.3 Landscape Project Development Stage

Stages or process can be considered as a basic principle in any area that hold the term 'develop' in order to ensure the end product of the development is in perfect form. In construction industry, it is part of the process that practitioners have to go

through to assess the viability of many aspects such as financial. It is crucial to understand and practice the right approach in order to minimize detrimental impact towards the environment, social and economy.

Table 2: Stages of Project Life Cycle in landscape construction industry

Author	Stage of Project Life Cycle
Abdul Aziz (2011)	Typical development process can be divided into three (3) <u>important</u> stages, namely i) Pre-Development Stage, ii) Construction Stage iii) Post-Construction Stage.
LaGro, J. (2011)	Landscape project development process can be termed as Project Life Cycle (PLC). Involves 4 <u>significant</u> phases: i) Pre-project/pre-design phase. ii) Site Assessment Phase. iii) Design Phase. iv) Implementation Phase
Kenzer (2009)	Involves 3 <u>significant</u> Stage i) Design Planning Stage ii) Construction or Implementation Stage iii) Post Construction Stage

Table 2 summarizes the literature review on the study of landscape project development process. According to Abdul Aziz (2011), a typical development process can be divided into three (3) important stages, namely i) pre-development stage, ii) construction stage and iii) post-construction stage. Abdul Aziz (2011) also stated that landscape project development process can be termed as Project Life Cycle (PLC). On the other hand, John Simons and LaGro (2013) suggest that project planning phases can be categorized into four (4) significant phases, which are: i) Pre-project/pre-design phase, ii) Site Assessment Phase, iii) Design Phase and iv) Implementation Phase. However, according to Kenzer (2009), stage of project involve three (3) signification stage, namely i) Design Planning Stage, ii) Construction or Implementation stage , and iii) Post construction stage. To conclude, the flow of activities starting from the inspection right up to the delivery of the completed project plays an important role in the flow of the construction development.

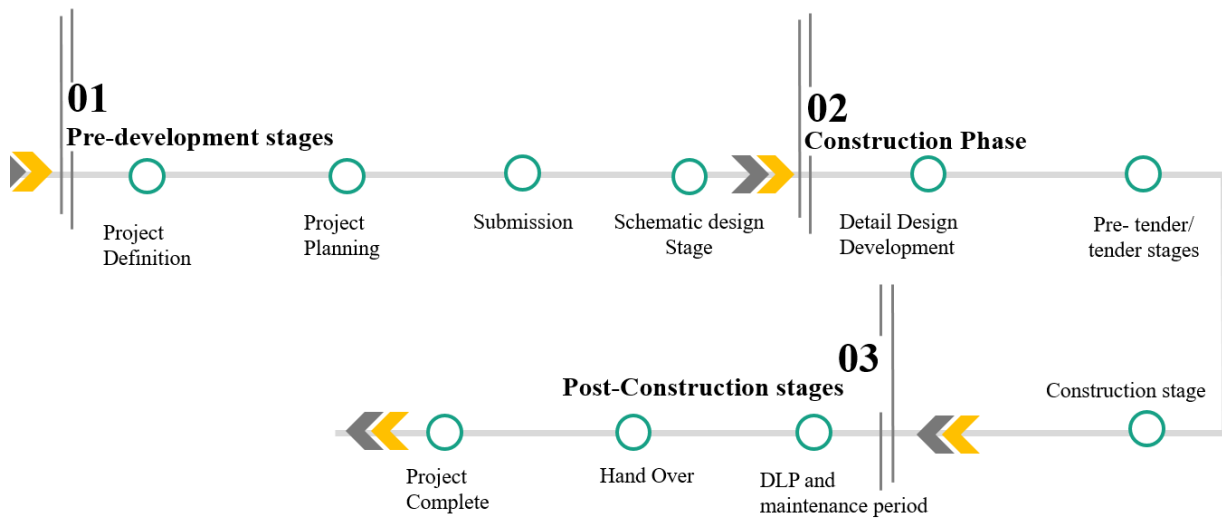
### 3.0 METHODOLOGY

The exploration of the study mainly focuses on identifying the framework of landscape development stage or PLC through reviews of literature available under the topic construction industry and landscape architecture. Review of literature consist of documentation, library research, internet resources (government and non-government web page), newspaper, journal, thesis and books in order to collect the secondary data as the supportive element to the research. The topics researched involve three main aspects i) Familiarity of PLC in landscape industry, ii) Stage of landscape development project (PLC), and iii) challenges in landscape construction industry. Analysis of data for the reviews involved categorization of topics related to their own theme (thematic analysis) in order to obtain the framework. From the literature review, a framework of process of PLC is developed in relation landscape architecture industry.

### 4.0 FINDINGS

Based on the literature review presented in the previous section, a framework of PLC in relation to landscape architecture industry in Malaysia can be grouped into three stages, namely Pre-development stages, Construction Stage, and Post Construction Stage. The detail activities are shown in Figure 1.

Figure 1 : Framework of Landscape Development Project Stage



Briefly, overall landscape project stages involve nine (9) sub-phases. They are: Project Brief, Project Planning Phase, Schematic Design Phase, Submission Phase, Detail Design Development Phase, Pre- Tender or Tender Phase, Construction Phase, DLP and Maintenance Period and the last Stages is Hand Over. The followings are the details of each phase under the stage of work.

#### 4.1 Pre-Development Stage

According to Kenzer (2009), pre-development stage is the earliest stage that involves four important phases which are i) Project brief or project definition phase, ii) Project Planning phase, iii) Schematic Design Phase, and iv) Submission phase.

##### a) Project Brief Phase

According to Motloch (1991), a project brief normally will be prepared by the design team which is from the client or developer side. The purpose of the project brief is to determine the direction of the project from the beginning until the completion. The project brief will determine the scale of the project, the location and boundary of the site as well as the job scope of the consultant. Project team also responsible to select tenderers among landscape consultants by the process of open tender and selective tenders. There must be three consultants for management team, construction team and developer team. Client must appoint the consultant by issuing the letter of appointment (LOA) and must be agreed by both side .The agreement should be included the overall amount of budget and the payment is subjected to every stage.

##### b) Project Planning Phase

In project planning phase, weekly design meeting must be conducted in order to provide updates and get input from other consultant. Consultant must review, recommend and obtain clients' approval especially in the issues of concept, cost estimates as well as the schedule. Consultant need to review status of design and budget with client and refine and update cost plan.

##### c) Schematic Phase

Schematic or conceptual design phase involve the task of review the concept of the design as well as to review cost estimate. Consultant must prepared various concept design options or alternative proposal in order to achieve the objective of the project. It is where the cost and practicality play an important part. Consultant need to get the client's approval in term of the concept, cost estimate and schedule or timeline of the project as well as get the authority's approval.

##### d) Submission Phase

According to official portal of Kuala Lumpur City Hall (DBKL), any particular project such as a land development or a mixed residential development or a simple building project are require authority approval at various stages of its

development. In Malaysia, any building or settlement that one intent to build must firstly obtain the approval of Development Order or in Bahasa is known as 'Kebenaran Merancang'. Again, anything that will build or even the extension and renovation of residential is considered as illegal settlement or extension. Therefore, In order to get this Development Order sort out, developer or client must get their consultant team on board. As stated in Uniform Building by law 1984, Street, Drainage And Building Act 1974 and Building Standard and Regulation by Building Department are establish to ensure all the development are comply with guideline and regulations.

#### 4.2 Construction Stage

The second stage is the construction stage, it is where the implementation stage begin where the work and task of the project is practiced on site (Bpayne & Adrienne Watt, 2015). According to John Simonds (2011), construction stage or implementation stage involves three important phases namely i) detail design development phase, ii) Pre-tender or tender phase and iii) construction phase or construction documentation

##### e) Detail Design Phase

According Simons (2011), detail design phase is an iterative process transitioning from the general to more specific. Topography, climate and hydrology are important environment factors that shape the design of built environment. The consultant also need to prepared detail of technical specification as guidance to the contractor and the client as well. Consultant must optimize design selection, schedule and cost including value management exercise and advise client for approval.

##### f) Pre- Tender or Tender Phase

Pre-tender or tender stages involve the process of appointment of contractor. There are several procedure in tender stages. First is confirmation of tender strategy. In order to select the contractor, consultant needs to present and discuss the Contracting Strategies Paper with the client and must get the approval before appoint the contractor. Consultant also requires to issue the notice of tender or advertisement as well as prepared tender briefing. Also, consultant need to issuance of Letter of Award (LOA) to the selected tenderer. Second stages are by preparing tender evaluation. Base outline tender programme, outline tender method statement, site supervisory staff, and source of material are important things that need to be consider in form of tender for tender evaluation process. Lastly is finalize the content of Invitation of BID (ITB). In general, content of Invitation can be sorted by five (5) volume. Volume 1 consists of an instruction to tenderer, articles of agreements as well as condition of contract. While volume 2 will discuss about general condition requirement needed covered the scope of works, health and safety regulation, environmental policy, logistic regulation as well as quality assurance policy. However, in volume 3 covered the specification of hardscape and soft cape issues, while volume 4 covered of technical proposal. Commercial proposal that contains of form of tender, summary of tender, and general conditions and preliminaries recorded in volume 5.

##### g) Construction Phase

Construction stage is an important part because at this stage the planning and design will be transforming into real model. It is very crucial to manage contractor's work on site as well as manage and review contractor's submission including extension of time (EOT), Variation order (VO), Liquidated and Ascertained Damages (LAD) many more. The consultant also needs to refine and update cost plan as well as issuance of Certificate of Practical Completion (CPC). During the construction stages, the contractor is required to submit the progress claim including the breakdown of percentage showing the elements of work done on site completed during the course of each month on the work package contract. Valuation of contractor's claim is carried out to ascertain actual work done against contractor's progress claim. This becomes the basis of recommendation for the payment to be certified in the Interim Payment Certificate (IPC) for the months or such agreed period. On the other hand, during the construction stage also contractor needs to prepare and recommend the Interim Payment Certificate (IPC). IPC is prepared upon the agreement of the joint site valuation. Client shall review and verify the completeness and sign the IPC including all the related supporting documentation and sign the IPC for submission to the person empowered in contract for the endorsement and approval purposes. The contractor also needs to issues the payment. Basically payment is made upon approval of the IPC. Issuance of payment is made by the client or Account & Finance Department.

#### 4.3 Post- Construction Phase

Post-construction stage is where the end product is handed over to the owner. As mention by Kenza (2009), post-construction stage involves two phases which are i) Project Completion and maintenance period as well as ii) project handover

#### h) Project Completion and Maintenance Period

Project completion can be divided into 6 stages, there are; Certificate Of Practical Completion (CPC), Certificate of Making Good Defect (CMGD), Certificate of Completion and Compliance (CCC), Project Hand Over, and Close Contract.

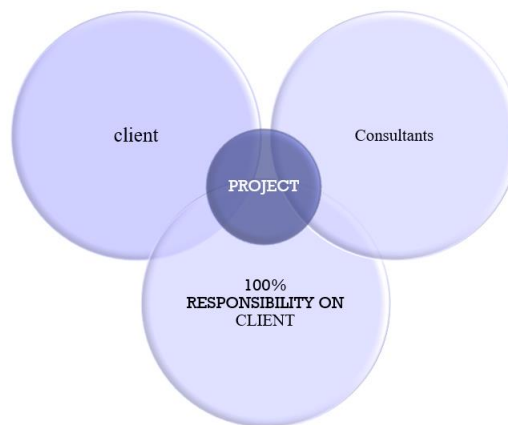
Briefly, CPC will be issuance from consultants in verifying the completion work done by the contractor to the client. CPC is important for contractor to make claims from the client and after CPC had be done an inspections will be done by consultant and contractor.

While, CMGD is a process is being done during DLP (Duration of Liability Period) that may take up 24 months. CMGD is the stage where the final claim had be processed. However, during the CCC, consultant will prepare and present planning and building plans to local authority for approval. Consultant team also need to supervise construction works at site and ensure that laws and technical conditions of local authority are allowed.

#### i) Hand Over

Last stage is hand over project to the client and close contract. After all the process are complete, the client will totally responsibility of the project. (Figure 2)

Figure 2 : Diagram Process of handover



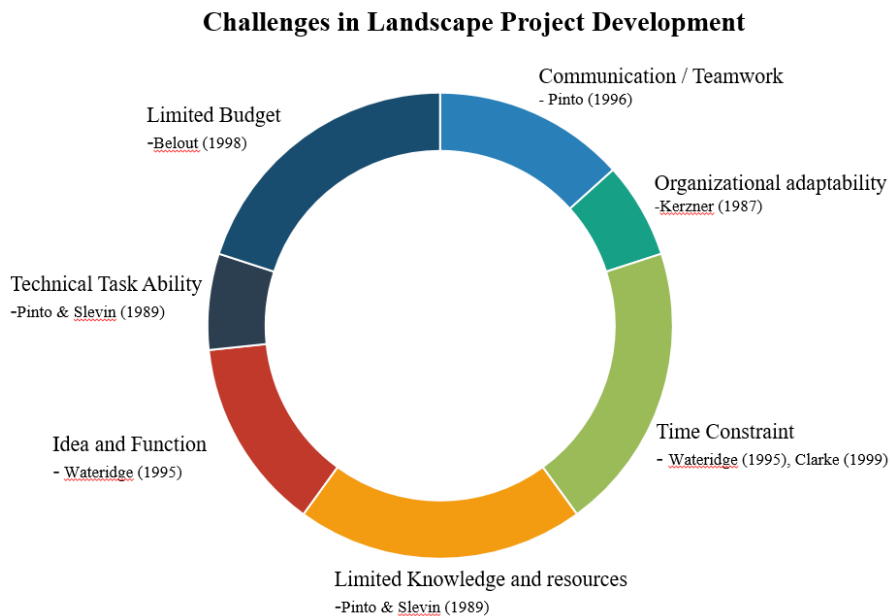
#### 4.4 Challenges in Landscape Architecture Industry

A great of decisions needs to be taken during the project management process. According to Zarina Alias (2014), the decision making in project development planning at the early stage have a bigger impact on the project management practice compared at later stages or during building or construction. Figure 3 elaborates several challenges in landscape industry. They can be categorized into: technical task ability, limited budget, communication and team work, organizational adaptability, time constrain, limited knowledge as well as idea and function. Currently, many academics and industrial researchers identify the challenges in industry. Therefore, it can be concluded that, three main critical challenges in landscape industry come from: i) Time constrain and limited budget, ii) Limited knowledge and resources and iii) Communication and teamwork in related field. According to Kosmo Online (2014), the wide scope of landscape caused the overlapping of function and roles among the professional due to the miscommunication and misunderstanding among professions closely related to landscape. Kosmo Online (2014) also stated that companies normally will limit their budget and lower their payment due to the high competitive level in current market. In short, the study identifies the overall challenges and the solution to overcome the problems to determine the success of a project planning.

In Malaysia, the government has drafted the national policy to include guidelines including landscape development in line with efforts to shape Malaysia into the concept of garden nation by 2020. The policy focuses on socio-cultural, environmental and economic aspects. Parallel with the vision, the policy envisions Malaysian professionals to be more involved and nurturing towards nature and landscape spaces in their way of life. However, currently there is no specific or standard policies that can be followed by landscape consultants and authorities in the landscape industry to protect the landscape profession in the construction industry. The wide scope of construction industry also caused roles overlapping among professions closely related to landscape. This is also supported by significant issues where the importance of landscape field being neglected due to misunderstanding and misperception towards landscape scope of work (Kosmo Online, 2014). According to Osman (2018), landscape development should focus and be emphasized in every commercial development or public projects to ensure social and economic sustainability. Institute of Landscape Architect Malaysia (ILAM) believes that, the focus will be achieved if the Landscape policy and act are established.



Figure 3: Challenges in PLC



## 5.0 SUMMARY

More studies are needed related to the knowledge of landscape construction industry, its scopes of practice study and project development process. These knowledges are expected to fill in the gap by improving data availability related to Malaysia landscape architecture industry especially. By reviewing various aspects of topic and chronological process in this paper, it is hoped that the research will be able to analyze the structure of landscape development and construction field as a whole, for better understanding of landscape project management. It is crucial to have deeper understanding and overview towards landscape architecture industry in Malaysia in order to build a competitive and complete landscape architects generation for the future.

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