

CHAPTER II

LITERATURE REVIEW

2.1 Construction Project

The construction project is a complex business and does not have exactly the same similarity as any previous project, so it is very important that a construction project requires construction project management. A construction project is a series of activities that are only carried out once and are generally short-term. In addition, construction projects also have characteristics that are unique, require resources (man power, materials, machines, money, methods), and require organization (Ervianto, 2005).

Nurhayati (2010: 4) explains that a project can be interpreted as an effort or activity organized to achieve goals, objectives and expectations are important by using budget funds and available resources, which must completed within a certain period.

Heizer and Render (2006: 81) explain that projects can defined as a series of tasks that are directed to a main results.

2.2 Project Delays

Bordat et al. (2004) that the time delay in project implementation is the difference between implementation the project at the time of the initial contract agreement and the project completion time interval.

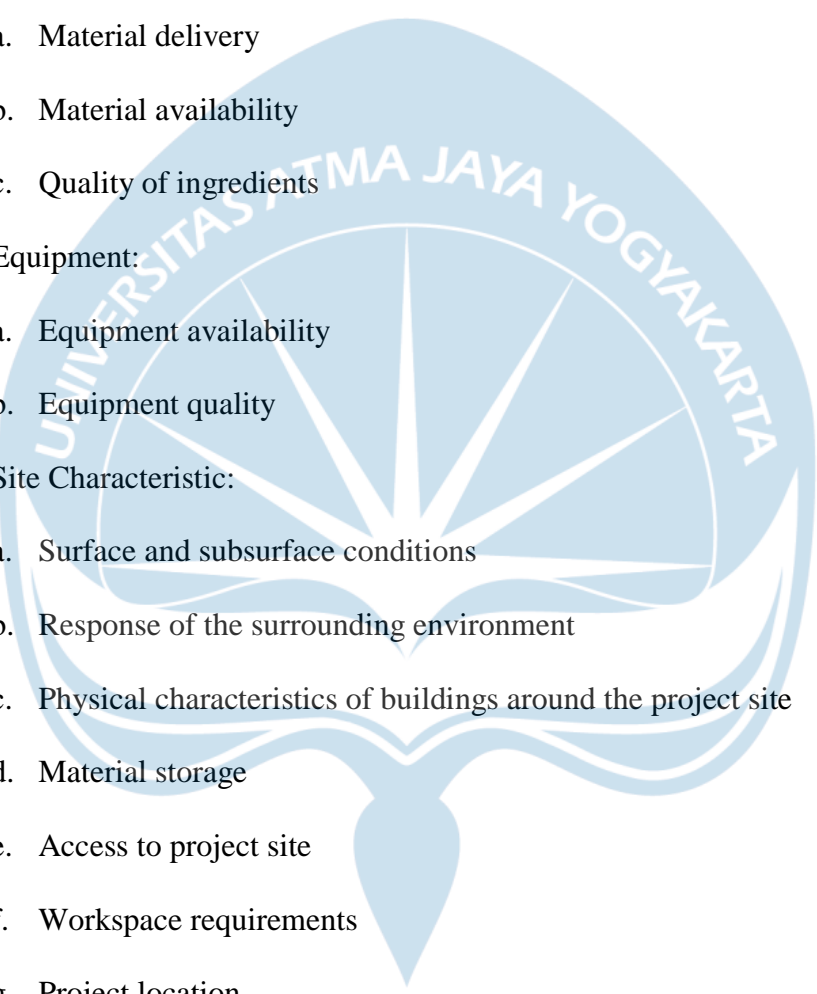
Delay in project implementation generally always has adverse consequences for both the owner and the contractor, because the impact of the delay is conflict and debate about what and who is the cause, as well as the demands of time, and additional costs (Proboyo, 1999).

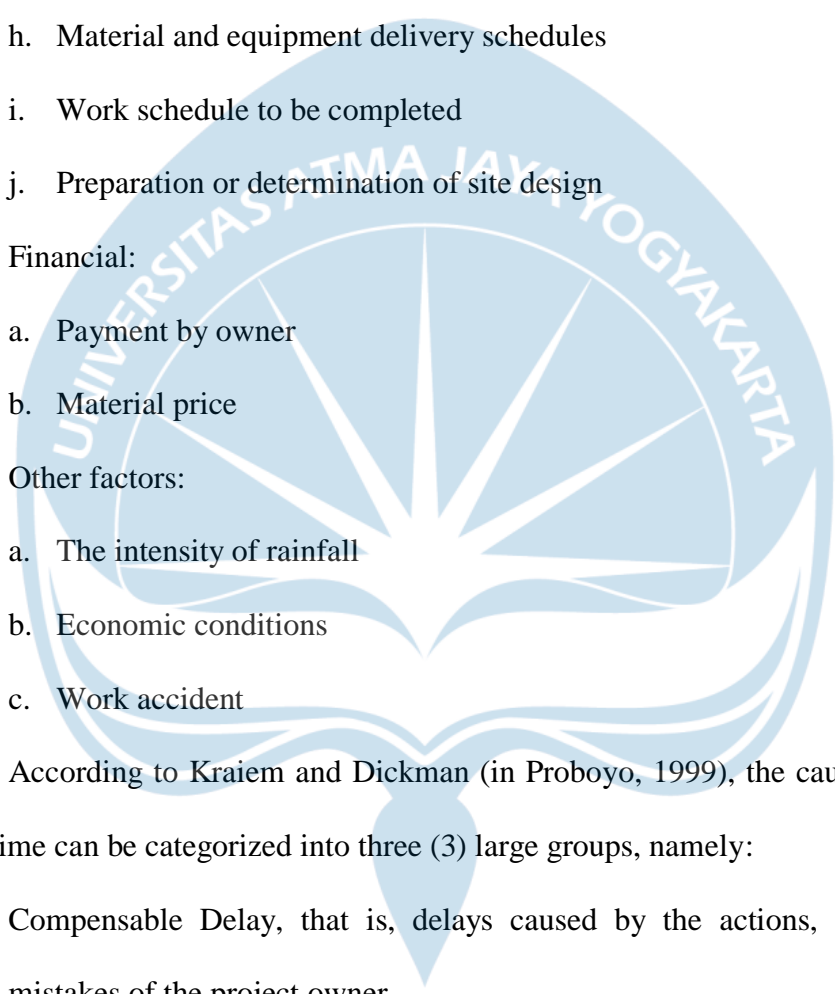
According to Alifen et al. (2000), project delays are often the root of disputes and claims between owners and service providers (contractors), so that it will result in additional costs which are very expensive, both in terms of the service provider (contractor) and owner. Also the contractor may be subject to penalties or fines according to the contents of the agreement in the contract, besides the contractor is also subject to additional or excess costs (overhead budget) while the project is still running. Also from the side of the owner will experience a loss in terms of reduced income that occurs due to the delay in operating the facility.

2.3 Factors that Cause Project Delays

Potential factors that influence the timing of construction, consisting of seven (7) categories (Andi et al. 2003), are:

1. Labors:
 - a. Workforce expertise
 - b. Workforce discipline
 - c. Work motivation of workers
 - d. Figures of absence
 - e. Availability of labor

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- f. Labor bar replacement
 - g. Communication between the workforce and the supervisory body
2. Material:
 - a. Material delivery
 - b. Material availability
 - c. Quality of ingredients
 3. Equipment:
 - a. Equipment availability
 - b. Equipment quality
 4. Site Characteristic:
 - a. Surface and subsurface conditions
 - b. Response of the surrounding environment
 - c. Physical characteristics of buildings around the project site
 - d. Material storage
 - e. Access to project site
 - f. Workspace requirements
 - g. Project location
 5. Managerial:
 - a. Project supervision
 - b. Quality control of work
 - c. Field manager experience
 - d. Calculation of material requirements

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- e. Design change
 - f. Communication between consultants and contractors
 - g. Communication between the contractor and the owner
 - h. Material and equipment delivery schedules
 - i. Work schedule to be completed
 - j. Preparation or determination of site design
6. Financial:
- a. Payment by owner
 - b. Material price
7. Other factors:
- a. The intensity of rainfall
 - b. Economic conditions
 - c. Work accident

According to Kraiem and Dickman (in Proboyo, 1999), the causes of project delay time can be categorized into three (3) large groups, namely:

- a. Compensable Delay, that is, delays caused by the actions, omissions, or mistakes of the project owner.
- b. Non-Excusable Delay, that is, delays caused by the contractor's actions, omissions, or mistakes.
- c. Excusable Delay, that is, delays caused by events beyond the control of both the owner and the contractor.

Kraiem and Dickman in Proboyo (2009) state that there are 45 types of causes for delays and are classified into management aspects, which are taken from 6 aspects of the study, including:

A. Aspects of Work Planning and Scheduling, including:

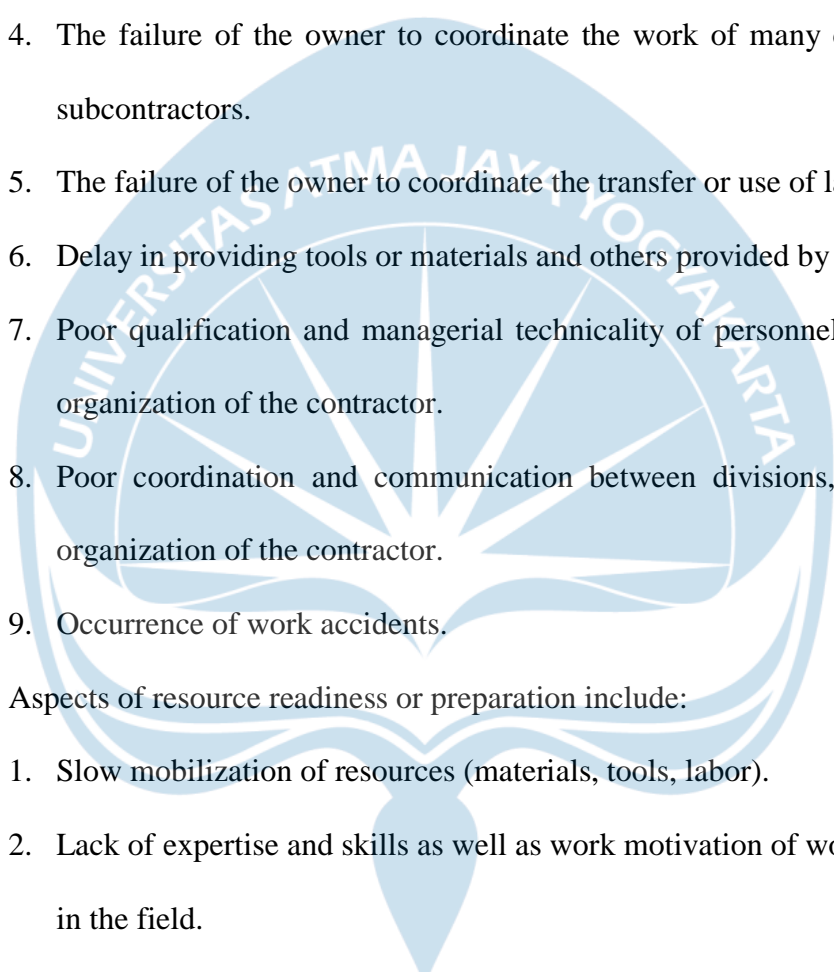
1. Very strict project schedule setting by owner.
2. Incomplete identification of the type of work that must exist
3. Poorly structured / integrated work sequence plan.
4. Inaccurate determination of the duration of work time.
5. The owner's work plan changes frequently
6. Incorrect or inappropriate methods of construction or work.

B. Aspects of scope and document of work (contract), including:

1. Incorrect or incomplete planning (drawings or specifications).
2. Design changes or work details at the time of execution.
3. Change in scope of work at the time of implementation.
4. The process of making work drawings by contractors.
5. Process of requesting and approving working drawings by owner.
6. Disagreement with the rules for creating working drawings.
7. There is a lot (often) of extra work.
8. There is a request for changes to work that has been completed.

C. Aspects of organizational systems, coordination and communication, including:

1. Limited authority of owner personnel in decision making.

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2. Qualification of personnel or owners who are not professional in their fields.
 3. The bureaucratic way of inspection and control of work by the owner.
 4. The failure of the owner to coordinate the work of many contractors or subcontractors.
 5. The failure of the owner to coordinate the transfer or use of land.
 6. Delay in providing tools or materials and others provided by the owner.
 7. Poor qualification and managerial technicality of personnel, in the work organization of the contractor.
 8. Poor coordination and communication between divisions, in the work organization of the contractor.
 9. Occurrence of work accidents.
- D. Aspects of resource readiness or preparation include:
1. Slow mobilization of resources (materials, tools, labor).
 2. Lack of expertise and skills as well as work motivation of workers directly in the field.
 3. The number of workers who are inadequate or in accordance with existing work activities.
 4. The unavailability of sufficiently certain or appropriate materials as needed.
 5. Unavailability of tools or work equipment that is adequate, or as needed.
 6. Negligence or delay by subcontractor work.

7. Funding of project activities that are not well planned (funding difficulties in contractors).
8. Contractor is not paid properly according to their rights. (difficulty in paying by owner).

E. Aspects of work inspection, control and evaluation systems, including:

1. Unscheduled submission of sample materials by contractors.
2. The process of requesting and approving samples of materials by the old owner.
3. The process of testing and evaluating the material test of the owner is not relevant.
4. The work permit approval process is lengthy.
5. Failure of contractors to carry out work.
6. Much work has to be repaired, or redone, because it is defective or incorrect.
7. The procedure for evaluating the progress of work takes a long time and passes an agreed schedule.

F. Other aspects (aspects beyond the capabilities of the owner and contractor), including:

1. The conditions and the site environment turned out to be not as expected.
2. Transportation to project sites is difficult.
3. Unforeseen things happen such as fire, flood, storm or hurricane, earthquake, landslide, terrible disability.
4. There was a labor strike.

5. There is riot or riot, war.
6. The occurrence of damage or damage due to negligence or actions of third parties.
7. Changes in the government's political or economic situation or policy.

2.4 Impact of Delay

Suyatno (2010) states that the emergence of delays in a project will result in all plans that have been planned initially and financial problems changed or disrupted. Delay in a construction project always results in an increase in the duration of the project or an increase in costs or both.

On the owner's side, delays can result potential loss of revenue from the planned facilities not according to the stipulated time. Whereas on the contractor side, delays can result in changes to plans for the placement of resources to other projects that will be carried out, as well as an increase in indirect costs due to expenditures on increased employee salaries and increased duration of equipment leasing which results in reduced profits from the contractor.

Delays cause losses to the Contractor, Consultant and Owner, namely:

1. Owner

The impact on the owner (owner) if there is a delay will result in loss or reduction of income derived from buildings or facilities that should have been able to operate. If the owner is the government, then public facilities such as hospitals will naturally experience delays in operating, thereby harming

community services or service programs that have been prepared. Such losses cannot be overcome by monetary compensation. Meanwhile, if the owner is a non-government, then projects such as building construction, construction of shops or hotels will result in a planned schedule delay from the beginning, so that there is an empty time period where the income has stopped.

2. Contractor

The impact on the contractor if there is a delay, will result in an increase in overhead costs, which includes the overall costs to the company, regardless of whether there is an ongoing contract. Resulting in losses, the possibility of rising material prices, employee and labor costs, equipment rental costs, and also the possibility of holding of contractor capital, which may be channeled to other projects.

3. Consultants

The impact on the consultant if there is a delay, will result in the consultant experiencing a loss of time for various factors and the delay in the execution of planning for other projects.

2.5 Previous research deals with Causes of Project Delay

Several researchers have previously conducted research and published it in the form of journals, theses, literature, handbooks. Below, described by several previous researchers, and this is a reference for completing this thesis.

Dewati et al (2010) conducted a study entitled the Jakarta Outer Ring Road Toll Road (JORR) WI Section Kebon Jeruk-Penjaringan Packages 4 & 5. Their results found that the most dominant risk factors cause a decrease in time performance, causing project delays. construction of JORR (Jakarta Outer Ring Road Toll Road) W 1 Kebon Jeruk - Penjaringan section (Packages 4 & 5). This discovery paved the way for getting the right treatment to fix it.

Nainggolan et al (2010) conducted a study with the title Cost and Time Performance Risk Management for the Central Park Jakarta Project. The research result obtained is that apartment construction projects are one of the projects that are affected by risks and uncertainties. Identify the dominant risk factors that affect the cost performance and project time in the construction of the West Jakarta Central Park Apartment. The questionnaire is addressed to stakeholders such as developers and main contractors, analyzed statistically to obtain a model of the relationship between risk factors on time performance and project costs, as well as the weight of variables that influence them.

Widhiawati (2009) conducted a study entitled Analysis of Factors Causing Delays in Construction Project Implementation. The result of this research shows that the implementation of construction projects generally has a plan and schedule of manufacture, the project plan refers to the estimate when the development plan is made. What problems can arise if there is a mismatch between the plan and its implementation. The impact is delays in implementation and increased costs. This

study aims to determine the main causes and factors that cause delay. The questionnaire was distributed to contractors located in the Denpasar municipality and registered as members of Gapensi Bali. From 216 contractors gred 2-7 in Denpasar municipality, 56 samples were taken using the stratified proportionate sampling method. The data analysis method used is a non-parametric statistical test with Kendall W analysis, using the SPSS 14.0 for windows program.

According to Andi et al (2003) and Proboyo (1999), the factors of delay are grouped into 10 factors. Furthermore, it is described in the site manager questionnaire and the field implementation of each contractor. From 168 respondents who participated, it can be concluded that the labor factor has the most dominant level of agreement / harmony, the main cause is the expertise of the workforce. It can be shown by the statistical value of the relationship > table statistics (242,260 > 12,592) and probability <0.05 (0.00 <0.005). H_0 is rejected, it means that there is harmony among the respondents regarding the influence of the late influencing factor and the W value of 0.241 is between 0.20-0.399 which means that the level of harmony between the respondents is low.

2.6 Factors for Delay in the Questionnaire

1. Material

Materials in building construction are vital in the project. The delay in the arrival of the materials that will be needed can certainly hinder the project's progress. Materials are an important factor in project work.

2. Labors

The number of workers required in each stage of project implementation varies, depending on the size and type of work. Planning that is not in accordance with the needs in the field can cause problems, because labor is a resource that is not easily available, and is very expensive. Lack of skills and expertise of the workforce can also result in low labor productivity, thus requiring a long time to complete the project Equipment

3. Equipment

Equipment is a factor that greatly influences the sustainability of the work of a construction project, where when the equipment is not available or the equipment is too low, the project will be hampered.

4. Financial

Contractor finances are not healthy, causing the process of procuring manpower and materials not in accordance with the capacity required in the project. This causes the execution time to be delayed because the progress of the work is not done.

5. Environment

The environment is an important factor in the construction of a project. If there are obstacles related to environmental problems, automatically the project implementation cannot be carried out, and will affect the working time of the project itself.

6. Site Characteristic

In the characteristics of the place, there are several things related to the condition of the land, the project location, access to the location and others. If any of the things above experience problems, then the project implementation will automatically be hampered and cause delays.

7. Contract Agreement

A bad contract agreement, makes the boundaries in the working relationship between the parties unclear, so that in terms of finding solutions to all problems that occur, it becomes confused or even has the potential to cause even bigger problems. And this will slow down project implementation.

8. Managerial and Scheduling

Managerial and time problems have the potential to cause project delays, because the parties related to project implementation are not on time and do not coordinate well, as a result of the problems that arise. This automatically causes delays in project implementation.

Based on the descriptions of experts who have conducted previous research on the factors that cause delays in construction projects and based on what happened in the implementation of construction projects in Ngada Regency, the authors added several factors, and are described in the questionnaire. Based on the experience of several active contractors, in Ngada District it self, delays in a construction project have become a very frequent occurrence and are even considered normal. Several factors included in this questionnaire were taken based on the opinions of several active contractors in Ngada District.

