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**INVESTMENT APPRAISAL AND DECISION
IN LPG TERMINAL AND JETTY PROJECT**

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INVESTMENT APPRAISAL AND DECISION IN LPG TERMINAL AND JETTY PROJECT

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ABSTRACT

The focus of the study is on the Investment Appraisal and Capital Investment decision of LPG Terminal and Jetty of Elite Petrochemical Company Limited. In order to fulfil the objective of the study, descriptive research method is used to collect both primary and secondary data. The primary data are obtained through personal interview with top level management of the company and secondary data are collected from the feasibility study report of the project, MOGE website and some seminars on LPG market in Myanmar. It was noted that market feasibility study was conducted and then capital investment appraisal techniques were applied to identify the financial viability of the project. The initial cash outlay of the project was estimated as per the engineering design and bill of quantities. The financial performance and cash flow projections for 10 years period were extracted as per market feasibility study and budgeted cost and expenses. Three investment appraisal techniques such as Payback period, Net Present Value and Internal Rate of Return were applied to evaluate the viability of the project. It was witnessed that Payback period of the project is about 6 years, Net Present Value is positive at 14% discount rate over the net cash flow for the period of 10 years and Internal Rate of Return (IRR) is 15.17% at which rate discounted net cash flow for 10 years of the project is exactly the same as total initial cash outlay. The management of the Company therefore decided to proceed with the project. It was however observed that as per post completion audit of the project, actual initial cash outlay is greater than the initially estimated one by MMK- 1,599 million due to project delay and depreciation of local currency and the actual financial performance for the period of 8 months from April to November 2018 is also well below the projection as a result of rising price of LPG mixture in the world market and drastic depreciation of local currency against US Dollar, about 18% drop of local currency value throughout 2018.

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List of Abbreviations

MOGE	Myanmar Oil and Gas Enterprise
NPV	Net Present Value
PBP	Pay Back Period
IRR	Internal Rate of Return
ARR	Accounting Rate of Return
MMK	Myanmar Kyat
USD	United States Dollar
ROCE	Return on Capital Employed
ROI	Return on Investment
DF	Discount Factor
DCF	Discounted Cash Flow
ELPC	Elite Petrochemical Company Limited
HSD	High Speed Diesel
MIC	Myanmar Investment Commission
MPE	Myanmar Petroleum Enterprise

CHAPTER I

INTRODUCTION

For every business, it is extremely important to maintain sustainable growth in order to let them survive in the long-run. They have to pursue the growth strategies such as Market Penetration, Market Development, Product Development and Diversification. Whichever strategy they try to adopt, it involves vast amount of money to spend, in other words it consumes the significant portion of firm's precious resources to implement the selected alternative which the firm presumes to be the best for it to keep the organic growth.

It is usually the most contentious issue among the management of the firms and its shareholders whether or not the firm should spend majority of its precious resources it has accumulated over the long period of time. Such a big spending to invest in tangible assets is called Capital Spending or Capital Expenditure (Capex). The firm has to make the decision on Capex under the condition of uncertainty and moreover once the project is started, the firm may find it difficult to reverse the on-going project without losing substantial proportion of resources. Therefore, Capital investment decisions normally represent the most important decisions that a firm makes.

Elite Petrochemical Company Limited has engaged in trading of petroleum products such as Gasoline (Ron-92 and 95) and High Speed Diesel of 50 and 500PPM for about 10 years. With its vast amount of experience in trading and marketing of petroleum products and the excellent potential in the expansion of LPG (Liquefied Petroleum Gas) market in Myanmar, it decided to invest about USD20 million for the development of LPG Storage terminal and Jetty facility in Thilawa Port Development Area.

Though current local consumption of LPG in Myanmar is about 6,000MT per month, both industrial and household use of it are on the rise because it is clean fuel, economy and easy to use for fast cooking and moreover the government is trying to promote the use of LPG in manufacturing industry and household to replace the use of firewood and charcoal with it to prevent the deforestation. The LPG production of state-owned plant at present stands at about 800MT per month and therefore the balance about 5,000MT is imported by seas and through border trade with Thailand. However the lack of private storage and discharging facility of LPG, nearly 3,500MT was imported through

border trade with Thailand and only 1,500MT of LPG was imported by Sea by Myanmar Oil and Gas Enterprise (MOGE) to its own storage facility in Thanlyin Refinery area. It is rational for Elite Petrochemical Company Limited to consider the investment to be made in development of LPG storage and filling terminal and jetty in Thalawa.

This paper examines the Capital Investment Appraisal techniques, Decision process adopted by the firm on financial viability of the project and funding the project and finally the performance review and post implementation audit of the project.

1.1 Rationale of the Study

Shareholders supply funds to a firm with the certain expectation that is to receive a return on their precious resources. The return must be generated by management using the finance provided by shareholders and/or lenders to invest in real assets. For the financial health of the firm and the economic welfare of the finance providers it is undoubtedly crucial that management employs the best techniques available when analyzing which of all possible investment opportunities will give the best return. High ranking management person within the organization has to take the bold decision on whether to build new factory or extend the old one to meet the rising demand of its products or to introduce the new products that may meet the changing taste of the customers, whether to develop all new and more fuel efficient airplane with light-weight materials or to revive the existing models to be more fuel efficient and to maximize the performance or whether the firm should pursue its expansion plan and invest in construction of jetty and LPG storage and filling terminal.

These types of decisions require not only brave people but people with high caliber need to be informed about some issues such as market environment and level of demand for the proposed activity, the culture and capabilities of the firm, the types and level of cost elements or total estimated initial cash outlay in the proposed plan and the estimated yearly cash-inflow to be generated once the project is completed and comes into operation and finally an understanding of the risks relating to the project.

Bravery, information and sense of urgency in a very competitive market environment are all essential inputs on undertaking the task of making new capital investment that consumes the large proportion of firm's precious resources which belongs to shareholders and some funds borrowed from financial institutions.

However, in order for the firm to justify whether the new project with huge capital investment is economically viable that is 'benefits outweigh the costs', another crucially important element needs to be taken into consideration: which is the application of investment appraisal technique that facilitates the management to make the right decision.

Capital budgeting is important because it creates accountability and measurability. Any business that seeks to invest its resources in a project, without understanding the risks and returns involved, would be held as irresponsible by its owners or shareholders. Furthermore, if a business has no way of measuring the effectiveness of its investment decisions, chances are that the business will have little chance of surviving in the competitive marketplace.

Majority of the business decisions involve a singular aspect of a business, however a capital budgeting decision involves two important decisions at the same time: a financial decision and an investment decision. On implementation of a project, the firm has agreed to make a financial commitment to a project that involves its own set of risks. Projects may run into delays, cost overruns and regulatory restrictions that can all delay or increase the projected cost of the project.

In addition to a financial decision, a company is also making an investment in its future direction and growth that will likely have an influence on future projects that the company considers and evaluates. So to make a capital investment decision only from the perspective of either a financial or investment decisions can pose serious limitations on the success of the project.

Before employing capital budgeting appraisal techniques to determine whether or not the project that is going to be undertaken is economically viable is to start with market feasibility study that is to evaluate the size and demand of the market, entry barrier to the market and the strength of the competitors.

After the firm has properly evaluated the market aspect, financial and non-financial aspect such as availability of funds, Capital structure, Capital Returns, the economic value of the project, legal issues, government regulations, it makes capital investment decision and proceeds with implementation of the project.

Once the success or failure of the current investment project have a profound impact on future ones that the firm is going to evaluate and implement, as per purpose of this study, the firm needs to undertake both the performance review and post-completion audit of the project using financial measures that are the important criteria of the success of the investment. The firm has to assess whether the investment is generating the

expected positive cash flows and whether it is fulfilling other targets evaluated in investment appraisal such as a payback period, internal rate of return and profitability of the project by making comparative analysis of actual results with projected ones.

The post-completion audit is usually performed to identify whether there was variance between actual amount of investment and the amount in projection that is favourable or adverse, there was any delay during the project and cost overrun to the project. The actual financial performance must be compared with budgeted ones and the questions to those responsible persons must be raised against any significant variances.

The performance review and post-completion audit are objective, independent assessment of the success of a capital investment project in relation to original plan and it provides feedback to those decision-makers to assist the implementation and control of future projects. In this study, the full process of the capital budgeting appraisal is evaluated.

1.2 The Objectives of the Study

The objectives of the study are:

- (a) To examine the investment appraisal and decision in LPG terminal and Jetty project
- (b) To conduct the post completion audit of the project to evaluate the actual performance against projected data

1.3 Scope and Method of the Study

The study focuses on the Capital Investment Appraisal Process, Performance Review and Post-Completion Audit conducted by Elite Petrochemical Company Limited in its new investment project of LPG terminal and Jetty in Thilawa. The main methods of Capital Budgeting Appraisal employed in the investment decision making process of the company are Net Present Value (NPV), Internal Rate of Return (IRR) which are based on the concept of time value of money and Pay-back method. The project appraisal was carried out in early 2016 with respective market data, projected initial cash outlay for the whole project and projected cash-inflows and Profit or Loss A/C for the period of five years from 2018-2022.

The descriptive research method is applied in this study. The primary data collection were conducted through in-depth personal interview with responsible management personnel of Elite Petrochemical Company limited and the secondary data were obtained from market feasibility study report of the company, the report of Capital Budgeting Appraisal, projected Cash-flow Statement and Profit or Loss Statement and Actual Cashflow and Profit or Loss Statement and relevant research paper and publications and textbooks on corporate finance.

1.4 Organization of the Study

This paper contains five chapters comprising introduction, rationale of the study, objectives of the study, scope and method of study and organization of the study is included in Chapter 1. In chapter 2, the theoretical background of capital investment appraisal, the process of the appraisal and methods of capital investment appraisal are presented. The profile of the company, Elite Petrochemical Company Limited, its organization structure and past, present and future state of LPG market in Myanmar are described in chapter 3. The analysis of investment appraisal and decision process of the Company, investment appraisal methods employed by the company and the assessment of success or failure of the project by performance measurement and post-completion audit of the project are presented in chapter 4, and findings, recommendations and needs for future study in chapter 5.

CHAPTER II

THEORETICAL BACKGROUND OF INVESTMENT APPRAISAL

The aim of this chapter is to deal with the theory of capital budgeting that is fundamental framework of this study. The theoretical framework of capital budgeting and its practical application in the business world is in fact essential part of the study and thus this chapter comprises the Concept of Capital Budgeting Appraisal, the principals of opportunity cost and time value of money, the managerial aspect of capital investment appraisal, the process of capital investment and Capital Investment appraisal techniques and factors to be considered in the project appraisal.

2.1 Concept of Capital Budgeting Appraisal

Investment appraisal techniques take a significant role in investment decision-making. Generally, an organisation continuously invests its resources in new plants or machinery or any other capital assets for expansion of its operations or replace the capital assets for its continuous operation and improving its efficiency. The main objective of the investment appraisal is to maximize the organisation's profits and optimizing the return on investment.

Capital investment appraisal literature is based on the assumption that the objective of a firm's manager is to maximize firm value, that is, the wealth of its shareholders. Therefore, capital investment appraisal and cost of capital estimation are major decisions that the financial manager has to make (Ryan and Ryan, 2002). In fact, managers should undertake capital investment projects only if they add to the value of the firm, which means that managers should identify and undertake all projects that add value to the company so as to maximize shareholder value (Gilbert, 2005). Profitable capital investment leads to the growth and prosperity of an economy. If profitability is low, investment will shrink.

Always having limits on firms available and precious resources such as capital, human resources and as it is not possible to reverse the investment project once it is started

without bearing any substantial amount of losses and as the firm has sustained the operating losses for years to come once it implemented loss-making projects, the managers of the firms must take into their account all alternative investment opportunities and their likely outcomes by conducting project appraisal before making decision on selection of projects that attracts the huge amount of firm's valuable resources and external finances if needed. The firm is obliged to service the external finances in the form of interest and principal based on the positive future cash flow generated by the project, it is utmost important for the firm to choose promising investment project having positive net cash flows in the future that is far greater than the amount invested.

2.2 Principals of opportunity cost and time value of money

The objective of investment within the firm is to create the value for its owners (shareholders) and thus the purpose of allocating money to a particular project is to generate the positive cash inflows in the future which is far greater than the initially invested amount. Therefore, the project appraisal decision is one involving the comparison of the amount of cash put into investment with the amount of cash returned.

In order to compare the amount of investment put into the project in the past with the amount of future cash inflows from the project, the time value of money which is the central concept in finance and business world as a whole must be considered.

Another important thing that needs to be considered before making decisions on capital investment projects is 'Opportunity Cost'. The amount of money that will be invested in capital projects can be used to invest in securities in financial markets such as ordinary shares and government bonds. The opportunity cost is the sacrifice of rate of return available from investments in securities that is forgone for an investment in capital projects. If available cash is invested in the capital project, it cannot be invested elsewhere to earn a return. A firm should therefore invest in capital projects only if they yield a return in excess of the opportunity cost of the investment which is also known as the minimum required rate of return, cost of capital, discount rate or interest rate.

The concept that 1MMK received in the future is not equal to 1MMK received today is known as 'time value of money'. Cash is consumed on making investment in capital project at present but cash inflows or returns will be derived from that investment in future years. In order to compare those future cash inflows with the amount of investment (initial Cash outflows) put into capital project, the future cash inflows must be

converted into value at present time by the use of required rate of return or an interest rate. The present value of future cash inflows can be achieved by present value formula:

$$P = \frac{F}{(1+i)^n}$$

P = Present Value

F = Future Value

i = interest rate

n = number of years over which compounding takes place

2.3 The process of capital investment

Though the project appraisal is one of a number of stages in the process of investment, there are still a lot of factors that contribute to the success of an investment project. In the academic world, the emphasis is mistakenly made on more sophisticated project appraisal techniques but in fact close attention to the evolution of investment ideas, their development and sifting may well produce more practical returns. Collaborating the evaluation of screened projects with strategic, resource and human considerations may lead to avoidance of wrong decisions. Following through the implementation with a view of what went right, what went wrong and why, may enable better decision making in the future.

The following are the steps involved in the process of successful capital investment.

1. Generation of ideas

A firm is more likely to face stagnate growth or in the worst case declining growth not because of poor methods of appraisal but because of a shortage of investment ideas. A good investment planning process requires a continuous flow of ideas through exploitation of new opportunities. It is very important to develop a system to encourage the idea generation and subsequent communication throughout the firm. The task of senior management is to nurture a culture of search for and sponsorship of ideas. Without the culture of generation of ideas, the investment proposal may arise in a reactive manner.

Therefore, a system and culture of idea generation is needed to help the firm get ahead of the game and be proactive rather than reactive.

2. Development and classification of proposals

Idea generation is followed by development stage in which the idea generator must elaborate those ideas in consultation with colleagues so that the idea will become probably viable projects to be implemented.

Initially there may be a long list of imaginative project ideas but this can be narrowed down in classification stage that involves matching projects to identified needs. It is not necessary to do detailed evaluation to all projects that may be very costly. Some projects may need extensive search for data and complex evaluation but other may not. Therefore classification of projects must be made in order to pay more attention as per priority.

(a) Equipment Replacement

Whether old and obsolescent equipment that is costly to maintain is to be replaced with new efficient one or not.

(b) Expansion or improvement of existing products

This type of investment concerns with increasing volume and improvement of quality.

(c) Cost Reduction

Some investment is needed for modification to new method of production or equipment or for purchase of new machine.

(d) New products

Some investment projects relate to introduction of new innovative products.

(e) Statutory and welfare investment

Some investments are necessary due to legal obligations for safety and control of pollution. Welfare investment that is very difficult to quantify is also needed to keep a satisfied workforce. Such an investment will not provide financial returns.

The investment decisions on equipment replacement, improvement of existing products and cost reduction may not attract serious attention from top management and may only need less documentation for investment appraisal. However major investment decision on launching entirely new product will require extensive evaluation of the project by applying appraisal techniques. Also the information needs and applying appraisal techniques may arise in proportion to the size of the investment.

3. Screening

Each investment proposals will be evaluated to establish if it is attractive enough to apply the complex analysis. There should be a proper check on technical feasibility of the proposal and some preliminary assessment of risk.

4. Strategy

The focal part of the overall strategic process is allocation of capital that is limited in nature. A good investment appraisal system must be in line with the firm's long-term plan. The bottom-up flow of ideas for investment should complement the top-down strategic planning.

5. Budget

Most firms prepares capital expenditure budgets for long term and thus individual investment projects must be assessed under the guideline of Capex budget.

6. Appraisal

At this stage, detailed cash flow forecast for initial cash outlay for new investment and future cash in-flow from operation is required as inputs to the more sophisticated evaluation methods such as net present value, internal rate of return (IRR). The firm's opportunity cost of capital must be identified and the project must be classified into risk categories such as high, medium or low.

7. Report and authorization

The proposal of investment project must be presented to top management for authorization with the detail of the nature of the project and the amount of finance needed together with forecast cash inflows and the NPV, IRR, ARR and/or Payback. Some analysis of risk and a consideration of alternative to propose project may be also required.

8. Implementation

The investment project must be monitored in order to be quickly aware of delays and cost variances with the plan. Actual cost must be compared with original estimates on a periodic basis. Deviation from projected cash flows are usually caused by following factors:

- a. Inaccuracy in the original estimate or the proposal report did not reflect reality perfectly
- b. Poor control of cost

Such a deviation must be identified and explained as the project progresses in order for the management to take corrective action to avoid further overspending.

9. Post-completion audit

Post-completion audit is the monitoring and evaluation of a capital investment project through a comparison of the actual cash flows and other costs and benefits with those forecasted at the time of authorization.

Three main reasons for carrying out a post completion audit:

a. Financial Control mechanism

This mechanism helps to identify problems and errors occurred in a project. Comparing outcomes with the original projections reveals whether the benefits claimed prior to approval actually materialize. If there is significant problem, modification or abandonment may be possible before it is too late.

b. Insight gained may be useful for future capital investment decisions

One benefit of post-completion audit is that it can identify the success or failure of the capital investment project generally. It may be discovered that data collection systems are weak or appraisal methods are poor. Regular post-completion audit helps to develop better decision making.

c. The psychological effect

If those responsible for the investment project have knowledge that implemented projects are monitored and reviewed, the forecasting accuracy of those responsible will be improved and the sufficient care will be paid during the implementation phase.

2.4 Capital Investment Appraisal Techniques

The followings are appraisal techniques for capital investment decisions.

1. Payback period
2. Accounting rate of return

3. Net Present value
4. Internal rate of return

1. Payback Method

The payback method is one of the simplest and mostly used method of capital investment appraisal. The payback period is the length of time before the cumulated stream of forecasted cash flows equals the initial cash outlay for the investment. If the stream of yearly cash flow from the investment is constant, the payback period can be calculated by dividing the total the total initial cash outlay by the amount of the expected annual cash proceeds.

If the stream of yearly expected cash flows is not constant, the payback period is determined by adding up expected cash inflows in successive years until the total is equal to the initial outlay.

The first setback of payback is that it does not take it into consideration the time value of money. It compares future cash flows without discounting them to their present values with initial investment. Secondly it ignores the receipts (cash inflows) beyond the payback period and the third disadvantage is the arbitrary selection of cut-off point. Because there is no theoretical basis for defining the appropriate time period, the manipulation may arise.

Due to non-consideration of time value of money in payback method, the discounted payback has come into force. All the yearly expected cash inflows are discounted to their present vales and the discounted values are then used to calculate the payback period.

The payback remains a widely used project appraisal method though it has some drawbacks. Although payback rule does not produce the best decisions, it is the simplest way to communicate an idea of project profitability. Moreover, the projects which return their initial outlay quickly reduce the exposure of the firm to risk as there is a great deal of uncertainty about the future cash flows.

2. Accounting rate of return

The accounting rate of return (ARR) is also known as return on capital employed (ROCE) or return on investment (ROI). It is the ratio of average annual profit from project

to the average investment cost. The use of accounting rate of return can be attributed to the wide use of the return on investment measure in financial statement analysis.

The problem with accounting rate of return is that profit figure are very poor substitutes for cash flow which is the focus of investment appraisal techniques. The most debating point of accounting rate of return is that it ignores to take account of the time value of money. Besides there may be high degree of bias in defining the cut-off hurdle rate.

Instead of such deficiencies in accounting rate of return, it is widely used in practice due to the fact that annual accounting rate of return is frequently used to measure the managerial performance of a business entity and from psychological perspective, managers are familiar with expressing financial data in the form of percentage and what is more, ARR can be calculated without knowledge of the required rate of return.

3. Net present value

The net present value of an investment proposal is derived by discounting the future net cash receipts at a rate that reflects the value of the alternative use of the funds, summing them over the life of the proposal and deducting the initial outlay.

$$NPV = CF_0 + \frac{CF_1}{(1+r)^n}$$

Where CF_0 = Cash flow at time zero (initial cash outlay)

CF_1 = Cash flow at time one, one year after time zero

r = the opportunity cost of capital or discount rate

NPV = the present value of the net cash inflows less the project's initial cash outlay

The decision rule is that if the present value of future cash inflows throughout the project life is equal to or exceeds the value of initial cash outlay ($NPV \geq 0$), the investment

should be accepted and conversely if NPV is less than zero ($NPV < 0$), the project should be rejected.

4. Internal rate of return

The internal rate of return (IRR) is an alternative technique for use in making capital investment decisions with consideration of time value of money. It represents the true interest rate earned on an investment throughout its economy life. IRR is also referred to as discounted rate of return or as yield of a project.

The internal rate of return is the rate of return which equates the present value of future cash flows with the initial outlay. It is the discount rate that will cause the net present value of an investment to be zero. Alternatively, the internal rate of return can be described as the maximum cost of capital that can be applied to finance a project without causing any reduction to shareholders' wealth.

IRR can be presented in following equation:

$$CF_0 + \frac{CF_1}{1+r} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} \dots \frac{CF_n}{(1+r)^n} = 0$$

As per above equation, IRR can be found by trial and error by using a number of discount factors until the NPV equals zero. In practice, the interpolation method is used to calculate the IRR without performing trial and error calculation. By using interpolation method, in order to find the discount rate that makes the NPV equals zero, it requires to find one discount rate that produces the positive NPV and another discount rate that will result in negative NPV

The formula derived from interpolation method is as follows:

$$DL + \frac{PVL}{PVL - PVH} (DH - DL)$$

where: DL = discount rate at low trial

DH = discount rate at high trial

PVL = net present value at low discount rate (positive)

PVH = net present value at high discount rate (negative)

2.5 Literature Review

A lot of surveys have been done all around the world about capital budgeting practices and the most effective factors on investment appraisal technique's selection. Numerous authors have assessed adoption of DCF methods in investment appraisal (Ross, 1986 in America and Sangster, 1993 in the UK).

A brief summary of the main methods (or the ones that have been used more for longer time) is presented, distinguishing between those that do not take into account the time value of money from those who do. In the first group (non-discounting cash flows methods), there are two methods: the payback period (PBP) and the accounting average rate of return (ARR). In the second group of methods (discounting cash flow methods, DCF), it includes the net present value (NPV) and the internal rate of return (IRR).

From these studies some conclusions can be highlighted. Firstly, discounted cash flow (DCF) methods are generally preferred over non-DCF (Ryan and Ryan, 2002). Secondly, there has been a shift from the use of the internal rate of return method to the net present value criterion methods, and a decrease in the use of the payback period method (Remer and Nieto, 1995a). Thirdly, the trend of applying ARR in major projects is declining (Akalu, 2001). Therefore, it can be said that the analytical techniques used by executives have increased in terms of sophistication (Hermes et al., 2006). Or, as pointed out by Pereiro (2006: 163), "the constant preaching of financial economists on the advantages of discounting valuation techniques has paid off: while such techniques were used by only a minority of practitioners in the 1970s, they are now employed by a majority of corporations and advisors". Fourthly, survey results also show that even though over time the use of the PB method has declined as a primary tool for project evaluation, it remains to be an important secondary instrument CFOs use (Hermes et al., 2006). Fifthly, larger firms are more likely to use DCF methods (Graham and Harvey, 2001, and Ryan and Ryan, 2002). Sixthly, there are some differences among industries in the degree of usage of more sophisticated capital investment appraisal methods (Moore and Reichert, 1983). Finally, it has been observed that when DCF methods are used, they are used in conjunction with other techniques that are presumed to be theoretically deficient and redundant (Gilbert, 2005).

CHAPTER 3

BACKGROUND OF MYANMAR LPG MARKET AND PROFILE OF ELITE PETROCHEMICAL COMPANY LIMITED

The aim of this chapter is to present the profile and management structure of Elite Petrochemical Company Limited and the past, present and future of LPG market in brief.

3.1 Profile of Elite Petrochemical Company Limited

Elite Petrochemical Company Limited (ELPC) was founded in 2010 with the objective to be a leading petro-energy company in Myanmar who would make substantial investment in constructing storage facilities of petroleum products such as Gasoline (Ron-92, Ron-95), High Speed Diesel (H.S.D) and Liquefied Petroleum Gas (LPG).

Elite Petrochemical Company Ltd has strived to be the leader in Oil and Gas supply-chain by integrating storage, transport, wholesale and retail trading of Oil and Gas.

Mission statement of the company: To provide quality petroleum products and services that are backbone of the economic development of Myanmar and help to improve the quality of life of its employees and citizens of Myanmar as a whole.

Vision statement of the company: By 2021 Elite Petrochemical Company Limited shall be recognized as leading provider of Oil and Gas products such as fossil fuel, Biofuel and LPG in both wholesales and retail sector with its dedication to quality and skillful management team and efficient workforce.

Core Value of the Company: ELPC always builds trust with its customers and suppliers and is always committed to fulfil the legal, social and constructed obligations within the business environment in which we develop our business.

During 2007 under the rule of State Peace and Development Council, the fuel subsidy was removed together with liberalization of petroleum products trading and the privatization of retail petro shops all over the country. At the same time, the government relaxed the rule on import of motor vehicles and as a result, local requirement of petroleum products was drastically increased and the state-owned oil storage facility can no longer accommodate the increasing quantity of import of petroleum products. In 2012, Myanmar Investment Commission therefore approved and granted the licences to companies fully owned by Myanmar nationals to construct and operate the oil storage facilities at Thilawah Port Area of Thilawah Industrial Zone in Kyauk Tan Township.

In 2011, it applied to Myanmar Investment Commission (MIC) for investment in construction and operation of LPG storage facility with the capacity of 3,500MT and oil storage facility with capacity of 100,000m³ (approximately 100,000MT) and the MIC approval permit was obtained in 2013 and in the same year, Myanmar Port Authority leased to ELPC 49.18 acres of land on plot no. 15 and 16 at Thilawah Industrial Zone, Kyauk Tan Township, Yangon Division. At the same time it started business activities and engaged in wholesales trading of petroleum products mainly High Speed Diesel.

Elite Petrochemical Company Limited (ELPC) started construction of Jetty and LPG storage facilities in December 2014 and the construction was completed in March 2018 and both jetty and LPG operation came into operation in April 2018.

3.2 Organization Structure

The organization structure is the typically hierarchical arrangement of lines of authority, communications, rights and duties of an organization. Organizational structure

determines how the roles, power and responsibilities are assigned, controlled, and coordinated, and how information flows between the different levels of management.

The Board of directors of ELPC consists of three executive directors who are responsible for management of three operating segments such as production, shared services and distribution and four non-executives and the Board is responsible to report to Executive Chairman.

The main duty of the board led by the supervision of executive chairman is to set the long-term strategy of the firm and especially needs to take care of the strategy formulation. The board have to closely monitor the implementation of the strategies by the General Managers and Managers in downstream management who are in direct control of day to day operations of the organization.

In order to make quick response to ever-changing business environment and its competitive situation in the market, the organization designs the decentralized structure and the General Managers helped by the participation of line managers are authorized to make decisions on operational issues.

3.3 The introduction of LPG into market

The government of Myanmar started launching Liquefied Petroleum Gas (LPG) in to the market in 1986 when the ministry of energy and electricity started LPG production at Minbu LPG plant in 1986 with installed capacity of 20MT per day. At that time, distribution of the LPG was carried out through retail gas station under ministry of energy and LPG was sold only to the civil servants.

The introduction of LPG into Myanmar market at that time is to promote the increasing use by household for cooking as a replacement of use of electricity and char coal in cooking. The intention is to reduce the use of electricity and wood in cooking and thereby to prevent the deforestation.

In 2005, as part of expansion of LPG production in Myanmar, Ministry of Energy build another LPG production plant in Nyaung Don which came into production in late 2005 with installed capacity of 17 MT per day.

Again in 2010, LPG plant in Kyaung Chaung came into production with the capacity of 15MT per day and thus at that time average monthly production was about

1,100MT though installed capacity was about 1,500MT per month because the actual output of Minbu plant was reduced due to age and availability of natural gas.

3.4 Myanmar LPG market

Until 2010, the production and distribution of LPG in Myanmar was fully controlled by Myanmar Petrochemical Enterprise (MPE), a department of Ministry of Energy and the market size was the same as the quantity produced and distributed by MPE which was about 1,100MT per month. With liberalization of energy sector in Myanmar, the distribution licence for LPG was granted to some private companies in 2010. Since that time, LPG market has been expanded and the consumption of LPG has been increased gradually.

Table – 3.1. Yearly LPG consumption in Myanmar

Year	LPG Consumption MT
2011-12	14,856
2012-13	15,411
2013-14	18,465
2014-15	29,908
2015-16	51,600
2016-17	57,835

2017-18	63,512
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Source: International LPG Seminar 2017, MOEE

In 2014, the licenced private companies started importing LPG from Thailand through border trade. With increasing certainty in supply side and competitive pricing of LPG, those companies have marketed and promoted the use of LPG mainly for cooking and at the same time attracted some industries to switch to use of LPG instead of diesel or electricity or other means of energy. Therefore, the current size of LPG market in 2018-19 is about 6,000MT per month which is being supplied through as follows:

Imported through Thai border trade	- about 1,700MT
Imported by sea	- about 3,500MT
Supplied by MPE	- about 700MT

Although LPG market in Myanmar has been expanded gradually, the size of Myanmar LPG market is relatively very small in comparison with Thailand LPG market. As per 2017 data, the LPG consumption in Thailand is about 4,700,000MT per annum and in Myanmar is about 60,000MT per annum which means LPG consumption in Myanmar is 80 time smaller than in Thailand.

3.5 Importers and Licensed Distributors of LPG

Until 2017, those companies who were granted distribution licences imported LPG from Thailand through border trade and locally purchased some quantity of LPG from Myanmar Petrochemical Enterprise (MPE) and distributed it throughout the country. In 2018, MPE started leasing its jetty and storage facility of LPG in Thanhlyin to Parami Energy Company Limited and at the same time in early 2018, privately owned LPG storage facility and jetty in Thilawah Port area came into operation. The cost of LPG is significantly reduced because sourcing large quantity gives the buyer advantage of bargain price and importing LPG in ocean tanker by sea greatly reduce the logistic cost.

Table 3.2 Importers and Distributors of LPG

Sr.	Name of Company	Function
	Elite Petrochemical Company Limited	Importer
	Parami Energy Company Limited	Importer and Distributor
	AwRa Trading Company Limited	Importer and Distributor
	Myanmar Liquefied Petroleum Gas Group Co., Ltd	Importer and Distributor
	Infinite Benevolence Co., Ltd (IB Gas)	Distributor
	Kaung Htet Myanmar Trading Co., Ltd	Distributor
	Universal Energy Co., Ltd	Distributor

Source: 7th Myanmar Oil and Gas Summit, 2017

CHAPTER IV

ANALYSIS ON INVESTMENT APPRAISAL, DECISION AND POST-COMPLETION AUDIT IN LPG AND JETTY PROJECT

This chapter is the major part of the study and presented under three major sections. The first part describes the appraisal process the project and in second part, application of investment appraisal techniques with detailed calculation for each appraisal method and making decision based on the outcomes of each appraisal method. Final presentation is post-completion of the audit in which the actual performance of the project is compared with budgeted performance of the project.

4.1 The investment appraisal process and techniques

(a) The investment appraisal process

Before applying the appraisal techniques for calculation from which the investment decision should be made, the following processes must be carried out to gather the data necessary for application of investment appraisal techniques.

1. Feasibility study of the project from market aspect
2. Opportunity Cost of Capital or Weighted Average cost of capital
3. Estimated life of the project
4. Estimated initial cash outlay or cost of investment
5. Financial Projection and Performance of the project and Estimated cash inflows
6. Risks associated with the project (Inflation and Capital Rationing)

1. Feasibility study of the project from market aspect

Market feasibility study was conducted in early 2015 and it was concluded that the supply of LPG into the market mainly came from Thailand through border trade and production and supply from MPE is only about 800MT per month which is about 15% of market demand. Meanwhile, there is only a LPG storage facility and Jetty owned by MPE that can accommodate to store 5,000MT of LPG. Moreover, the government policy is to promote the use of LPG in cooking as a substitute to fuelwood (Biomass) and charcoal in order to prevent the deforestation and to electricity in cooking. Until now electricity price in Myanmar is heavily subsidized and cheapest among South East Asian Nations. Even in neighboring country, Thailand, the price of 1Kwh of electricity for residential use is about MMK190 which is more than 5 times higher than the price of electricity for household use in Myanmar. Therefore, the government has plan to increase the price of electricity and that such an action from government will force its citizens to switch from use of electricity for cooking to use of LPG that will result in significant increase in LPG demand in Myanmar and it is estimated that demand will increase by threefold to 180,000MT per annum in a year. Thus, importation from Thailand through border trade and the storage facility of MPE will not be able to accommodate surging demand and it is worthwhile for ELPC to invest in construction of Jetty and LPG storage facility in Thilawah.

2. Weighted Average Cost of Capital

It was decided that the project was to be financed by a combination of debt and equity capital in the proportion of 50% equity capital and 50% of debt. The rates of return required by equity holders and debit holders are 18% and 12% respectively and the weighted average cost of capital or overall cost of capital is as follows:

$$\left[\begin{array}{l} \text{Proportion of debt capital} \\ \text{x cost of debt capital} \\ 0.5 \quad \text{x 12\%} \end{array} \right] + \left[\begin{array}{l} \text{Proportion of equity capital} \\ \text{x cost of equity capital} \\ 0.5 \text{ x 16\%} \end{array} \right] = 14\%$$

3. Estimated life of project

Estimated useful life of the project is 30 years. Though jetty facility still can be used beyond 30 years but the storage facility of LPG will require new replacement. Thus it is assumed that there will be no scrap value of the project.

4. Estimated initial cash outlay or initial investment

The initial cash outlay or investment of the project was estimated at MMK- 32,814million of which MMK -10,126million was projected for construction jetty and equipment necessary for operation of jetty and MMK- 22,687million was estimated as cost of construction of LPG storage terminal, refilling facility, firefighting facility, buffer tanks, land improvements, electrical installation and equipment, loading platform, Programmable Logic Control System for operation of LPG terminal, office building, dormitory building, canteen, water storage tank for firefighting and loading platform.

Table.4.1. Initial cash outlay of the project

Estimated initial Cash outlay

Sr.	Particular	MMK in million
	Estimated investment in Jetty	
1.	Cost of Jetty Construction	8,670
2.	Jetty Equipments	1,421

3.	Operation Building in Jetty	35
	Sub-total for jetty	10,126
	Estimated investment in LPG Storage Terminal	
4.	LPG Storage Plant and Equipment	14,933
5.	Administrative Building	669
6.	Operation Building	1,561
7.	Electrical and sanitary installation	541
8.	Furniture and office equipment	89
9.	Motor vehicles	560
10.	LPG Cylinder	721
11.	Roads and land improvement	3,216
12.	Project Preliminary expenses	398
	Sub-total for LPG terminal	22,688
	Total investment	32,814

Source: Company Data

5. Projected financial performance and cash inflow

Though useful life of the LPG storage facility and Jetty was estimated for 30 years, for the purpose of conducting investment appraisal the financial performance and net cash inflows were forecasted for 12 years horizon that is 40% of the project life.

6. Risk associated with the project

Once the majority of equipment and materials used in the project are imported from overseas and priced in US dollar, unfavourable exchange rate movement or depreciation of local currency will have significant impact on the amount of investment.

The inflation usually comes together with the depreciation of local currency and it will affect the investors' required rate of return from the investment and the value of the cash flow. When inflation rises, the purchasing power of money will decrease and the investors will expect to achieve higher rate of return from investment that will bring about

the adjusted discount rate to be applied to the investment appraisal and thereby the expected outcomes produced by the investment appraisal techniques will change in tandem with new discount rate.

(b) Investment appraisal techniques

The mostly used investment appraisal techniques such as Payback Period, Net Present Value Method and Internal Rate of Return method are applied in investment appraisal of LPG project.

1. Payback Period

The calculation of payback period is as follows:

Table. 4.2. Payback Period MMK in million

Particular	Amount	Balance
Initial Cash Outlay Yr-0	(32,814)	
Net Cash Inflow – Yr-1	1,774	(31,040)
Net Cash Inflow – Yr-2	3,980	(27,060)
Net Cash Inflow – Yr-3	5,054	(22,006)
Net Cash Inflow – Yr-4	7,322	(14,684)
Net Cash Inflow – Yr-5	9,571	(5,113)

Net Cash Inflow – Yr-6	8,318	
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Source: Company Data

In year-6, the balance of initial cash outlay MMK- 5,113 is lower than net cash inflows for the year MMK- 8,318 and thus that balance investment can be recovered within 7.3 months.

$$\text{The recovered period in year 6} = \frac{5,113}{8,318} \times 12 = 7.4 \text{ months}$$

Thus, the Payback Period is 5 years and 7.4 months and the investment can be recovered within 5 years and 7.4 months without considering the time value of money.

2. Net Present Value (NPV)

In calculation of Net Present Value, the time value of money is considered and the investors' required rate of return or discount rate of 14% is derived from weighted average cost of capital calculated in paragraph 4.1.2.

NPV is calculated based on forecast net cash inflows for the period of 10 years that is 33.33% of life of the project.

Calculation of Net Present Value

Table. 4.3. Net Present Value calculation

Particular	Cash Flows	DF at 14%	DCF
Initial Cash Outlay Yr-0	(32,814)	0	(32,814)
Net Cash Inflow – Yr-1	1,774	0.8772	1,556
Net Cash Inflow – Yr-2	3,980	0.7694	3,062
Net Cash Inflow – Yr-3	5,054	0.6749	3,434
Net Cash Inflow – Yr-4	7,322	0.5920	4,334
Net Cash Inflow – Yr-5	9,571	0.5193	4,970
Net Cash Inflow – Yr-6	8,318	0.4555	3,789
Net Cash Inflow – Yr-7	9,205	0.3996	3,678

Net Cash Inflow – Yr-8	10,039	0.3505	3,519
Net Cash Inflow – Yr-9	10,897	0.3075	3,351
Net Cash Inflow – Yr-10	11,184	0.2697	3,016
Net Present Value			1,895

Source: Company Data

Once Net Present Value is positive, the project is acceptable and can be proceed with investment.

3. Internal Rate of Return (IRR)

The calculation of Internal Rate of Return (IRR) of the project is presented in the following table with discount factor at low trial of 14% and at high trial of 16% and eventually IRR is 15.17% at which NPV of the project is zero.

Table. 4.4. Internal Rate of Return calculation

Particular	Cash Flows	DF at 14%	DCF	DF at 16%	DCF
Initial Cash Outlay Yr-0	(32,814)	0	(32,814)	0	(32,814)
Net Cash Inflow – Yr-1	1,774	0.8772	1,556	0.8620	1,529
Net Cash Inflow – Yr-2	3,980	0.7694	3,062	0.7431	2,958
Net Cash Inflow – Yr-3	5,054	0.6749	3,434	0.6406	3,238
Net Cash Inflow – Yr-4	7,322	0.5920	4,334	0.5523	4,044
Net Cash Inflow – Yr-5	9,571	0.5193	4,970	0.4761	4,557
Net Cash Inflow – Yr-6	8,318	0.4555	3,789	0.4104	3,414

Net Cash Inflow – Yr-7	9,205	0.3996	3,678	0.3538	3,257
Net Cash Inflow – Yr-8	10,039	0.3505	3,519	0.3050	3,062
Net Cash Inflow – Yr-9	10,897	0.3075	3,351	0.2629	2,865
Net Cash Inflow – Yr-10	11,184	0.2697	3,016	0.2267	2,535
Net Present Value			1,895		(1,355)

Source: Company Data

At discount rate of 14%, the project has the positive Net Present Value of MMK-1,895 million and at the discount rate of 16%, Net Present Value of the project becomes negative. Therefore, Internal Rate of Return (IRR) will lie between the rate of 14% and 16%.

$$14 + \left[\frac{1,895}{1,895 + 1,355} \right] (16 - 14) = 15.17\%$$

The weighted average cost of capital or investors' required rate of return of the project is 14% at which the project can achieve positive NPV within the project life of 10 years and at IRR 15.17%, NPV of the project equals zero which means the entire amount of investment can be recovered even if some external factors such as inflation or rate of interest cause upward change to investors' required rate of return. In this case, the investors' required rate of return can deviate upward from 14% to 15.17%.

4.2 Investment Decision

a. Investment Decision from the aspect of financial factors

The overall appraisal results of the project is found to be favourable. The Payback period of the project is about 6 years which is about one fifth of the economic useful life of the project (30 years) and investors can recoup the amount invested in the project within the short time of about 6 years.

The Net Present Value calculated at discount rate or weighted average cost of capital of 14% for the operation period of 10 years is also positive and it is quite favourable for investors to make investment in the project that can be fully recovered within 10 years of operation.

The internal rate of return is about 15.17% which is maximum cost of capital or maximum required rate of return of investors. Although the IRR deviation from real required rate of return ($15.17\% - 14\% = 1.17\%$) seems small, the investors were quite happy with IRR of 15.17% and it is decided to proceed with investment in LPG project.

b. Investment decision from the aspect of non-financial factors

The government of Myanmar is the major driving force for increasing use of LPG in the country. In Myanmar, current sources of energy for cooking consist of Fuelwood (Biomass) 69.2%, Charcoal 11.8%, Electricity 16.4%. Therefore the use of LPG in cooking is tiny fraction (about 2.6%) of total energy used for cooking. The government likes to make it shift from use of fuelwood, charcoal and electricity in cooking to use of LPG in order to prevent from deforestation and to meet the surging demand of electricity for lighting and industrial use.

The government has been heavily subsidizing the price of electricity and has plan to remove the subsidy by increasing the price of electricity. That will definitely force the users of electricity for cooking to abandon it for cooking and to switch to use of LPG in cooking. Therefore, the growth of LPG market has greater potential and it is wise for the investors to take investment opportunity of LPG project.

From environmental aspect, LPG is environmentally friendly fuel in comparison with energy sources such as fuelwood and charcoal. LPG produces significantly lesser CO₂ emission (close to zero) and can help to make the environment cleaner. Thus, the investors decided to throw money into the project.

4.3 Post-completion audit and evaluation of actual financial performance against projection

The whole project was completed and was ready for commercial operation in March 2018 and eventually it came into operation on 1st April 2018. The post-completion audit would be performed on two fronts:

a. Evaluation of Actual amount of investment on the project against projected amount

The following table shows the comparison of actual amount of investment and the amount of initial projection of the project.

Table 4.5. Estimated and Actual Amount of Investment

(MMK in million)

Sr.	Particular	Projection	Actual
	Estimated investment in Jetty		
1.	Cost of Jetty Construction	8,670	9,044
2.	Jetty Equipment	1,421	1,495
3.	Operation Building in Jetty	35	32
	Sub-total for jetty	10,126	10,571
	Estimated investment in LPG Storage Terminal		
4.	LPG Storage Plant and Equipment	14,933	15,697
5.	Administrative Building	669	638
6.	Operation Building	1,561	1,603
7.	Electrical and sanitary installation	541	584
8.	Furniture and office equipment	89	93
.9	Motor vehicles	560	594
10	LPG Cylinder	721	829
11.	Roads and land improvement	3,216	3,374
12.	Project Preliminary expenses	398	430
	Sub-total for LPG terminal	22,688	23,842
	Total investment	32,814	34,413

Source: Company Data

The total cost of project was initially estimated at MMK- 32,814 million but total actual invested amount was MMK- 34,413 million and the project cost was overrun by MMK- 1,599 million that is 4.9% increase over initial estimates which was mainly due to project delay and local currency depreciation during the project's period. It is initially estimated that the project was to be completed and came into operation in May 2017 but it encountered delays in receiving some imported machineries and equipment that was caused by cash flow problem. The project was to be funded by equal combination of equity and debt funds and the timing of funding from investors and lenders were not to be in line with time of settlement to be made for those machineries and equipment and such a timing difference led to delay in import of those items. As a result, the project was actually completed in March 2018 nearly one year later than initial timeline.

As stated above, the cost of project was overrun by MMK- 1,599million that could be attributable to depreciation of local currency during the project's period. At the time of

estimating initial cost of the project in 2015, the exchange rate applied was MMK- 1,250 to 1USD and in 2016, the exchange rate dropped to about MMK- 1,300 to 1USD and in 2017, it has further depreciated to MMK- 1,370 to 1USD. The majority of machineries and equipment used in the project were sourced from overseas during the year 2016 and 2017 and the depreciation of local currency pushed up the cost of those items.

b. Review of Actual financial performance vs projected financial performance

The comparison of actual financial performance with projected financial performance is shown in the following table.

Table. 4.6. Comparative Profit or Loss Statement of Projection and Actual for the period from April to November 2018

Description	Projection	%	Actual	%	Variance
Sales (MT)	20,000		18,970		-5%
Sales	21,416	100%	22,676	100%	6%
Cost of Sales	17,009	79%	20,092	89%	18%
Gross Profit	4,407	21%	2,584	11%	-41%
Fixed Expenses	3,224	15%	3,436	15%	7%
Operating Margin	1,183	6%	-852	-4%	
Depreciation & Amortization	897	4%	979	4%	9%
Profit / (loss) before	286	1%	-1,831	-8%	

Tax					
Taxation	72		0		
Profit after tax	214	1%	-1,831	-8%	
Cash Inflows	1,111		-852		

Source: Company Data

In above table, the evaluation of actual performance against projection is presented. The actual sales quantity is just slightly lower than projection but sales revenue is 6% higher than projection and cost of sales is 18% higher than projection. During eight months from April to November 2018, the local currency was depreciated by more than 18% that simply pushed up the cost of sales by 18% but on the other hand, under severe competition in the market, the entire 18% increase in cost could not be passed directly to consumers. To make the matter worse, the price of LPG in world market rose by nearly 20% during past 5 months. Those are the reasons why selling price cannot be adjusted to absorb the increased cost and thus actual gross profit margin was down by 41% against projection.

The cost of sales as a percentage of sales was projected at 79% and the gross profit was estimated at 21% of sales revenue. In actual, the cost of sales is 89% of sales revenue and gross profit is only 11% of sales. With this current trend of exchange rate, LPG price in international market and difficult market condition, the management believes that it is big challenge for the company to maintain cost of sales at 84% of sales and gross profit margin at 16% of sales.

The fixed divisional expenses are in line with projection and the depreciation and amortization expense is slightly higher than projection due to cost-overrun in capital expenditure.

Though the financial performance of the company for the period from April to November 2018 was disappointing compared with the projection, the shareholders and its management board believes that the performance will be getting better and hit the projections in second year of operation due to the underlying circumstances such as retreat of oil price back to optimal level between USD50 and USD60 per barrel and at the same time stabilizing foreign exchange rate which has been hovering around MMK/USD-1,550 for past two months. It is further expected that the equilibrium exchange rate would be MMK 1,500 per USD throughout the majority part of 2019.

CHAPTER 5

CONCLUSION

Throughout this study, it was presented the investment appraisal techniques and practical application of those techniques in making decision to proceed with capital investment in LPG terminal project. In this chapter, some findings which were resulted from the weak projection data used in investment appraisal and recommendations and need for further research are presented as per those findings.

5.1 Findings

The capital investment appraisal techniques such as Pay-back method, Net Present Value and Internal Rate of Return (IRR) were applied so as to reinforce the feasibility of the LPG terminal project which was initially carried out from the market aspect.

As per the calculation, the Pay-back period without consideration of time value of money is about 6 years, Net present value at 14% of opportunity cost of capital turns positive during time horizon of 10 years and Internal Rate of Return (IRR) is 15.17% at which rate Net Present Value of the project is zero for the period of 10 years and the maximum allowable extent of deviation from the required rate of return is 1.17%.

From the beginning, the study observed that the board is a bit optimistic with the selection of investors' required rate of return or opportunity cost of capital which was fixed at 14%. As the rate of inflation for 2018 forecast by Asian Development Bank stood at 6.2%, the real rate of return of the investors is about 7.8% which is slightly lower than the nearly risk-free interest rate on bank deposit of 8%. It seems the board did not take into consideration the impact of external forces such as economic and political changes on the capital investment project.

At the time of conducting capital budgeting appraisal, it was evident that the board seems to underestimate the exchange rate movement or the extent of depreciation of local currency which was never expected to the level of MMK- 1,600 to 1USD in 2018 when it started commercial operation and meanwhile it was seen that the best prediction of the oil price was USD60 per barrel. Therefore, the projection of profitability and cash flow of the project for first year of operation was on the high side in comparison with actual performance figures.

5.2 Recommendations

Making in-depth analysis of implementation of LPG terminal and Jetty project of Elite Petrochemical Company Limited, it was observed that there was some weakness in capital structure or funding structure, its project management team and shareholders' commitment to funding the project. The project was delayed for nearly one year due to late capital contribution from shareholders and the performance of inefficient project management team and consequently the cost of the project well exceeded that of original estimates. The company should pay more attention to funding or capital structure on considering financial strength and commitment of its shareholders in future capital investment projects. If necessary, the proposition of debt and equity funds must be quickly revised on proper consultation with equity providers (shareholders) and lenders (banks).

It was also evident that the company was too optimistic about prevailing market conditions at the time of investment decision and not good enough to predict the market

uncertainty and associated risks. It over-estimated the price of LPG and strength of local currency during the project period and beyond. The company therefore should forecast the price trend of import trading item from the worst-case perspective and the impact of inflation and value of local currency from the views of low, median and high in future investment projects.

It was also seen that there was no sufficient budget planned for ancillary facilities such as LPG transport trucks, different sizes of LPG cylinders and small-scale LPG storage and filling facilities in major cities throughout the country except Yangon in order to out-reach the market and achieve the planned distribution target. It is very important for management to thoroughly take into consideration the sufficient budget for ancillary facilities to avoid the crippling effect on sales.

Under current circumstance, as it is very difficult for the company to achieve the projections of financial performance and cash flows, it should seriously pursue market penetration strategy and at the same time try to implement the measures that will bring down the operating expenses to budgeted level so as to hit the projections.

5.2 Needs for Further Research

The focus of this study is only on the capital investment techniques such as Payback Period, Net Present value and Internal Rate of Return with simple assumptions and forecast. Further research is needed to apply in capital budgeting appraisal **Sensitivity Analysis** which examines the impact of a change in the value of one variable on the project Net Present Value, **Scenario Analysis** establishing worst-case and best-case scenario that is what NPV will result if all the assumptions made initially turned out to be too optimistic and what the result would be if matters went extremely well on all fronts.

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