

Project Implementation Review

2 Storey Single Detached Residential Building, New Manila, Philippines

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Summary

Philippines is one among the many countries laden with problems common to thickly populated places in the world. One problem is how to provide the poverty-ridden inhabitants of the country with decent shelter at affordable costs. Philippines has been trying to implement a low-cost housing project for several years already, yet the problem on housing the low-income group of the society is far from over in the near future.

The project discussed in this paper is not designed for the lower class but for the upper middle class housing requirement. Traditionally, this sector of the society builds or buys houses of their own choice not only for dwelling but for investment purposes as well. The same group of the society in some cases contributes to the government-housing program by engaging into a modest housing project catering to both the lower and middle classes group of the society.

The project owner built this residential building with the intention of selling it when completed to a captured client. The residential building was finally bought and paid fully eight months after the project completion by the same person who had given an advance payment earlier. The new owner expressed satisfaction on the quality of workmanship and the aesthetic features of the property he bought.

The said project was completed behind the schedule and somewhat exceeded the budget due to some uncalculated risks that the designer and the owner did not realise until those happened.

The original owner could have earned more from this project had there was no delay in its implementation. The additional expenses incurred for overhead costs and interest charges of borrowed capital could easily form part of the profit had the project schedule was not extended. But as far as the original owner is concerned, he was happy with the turn out of his project because he was able to dispose of the lot at the cost he wanted which he cannot easily do if it was just a plain piece of empty lot.

The paper discussed the different stages of the project, the odds encountered in different stages, and how these odds were remedied and overcome.

The most important lesson learned from this undertaking by the original owner is that, the experts can do much better than anybody else can. It is better to leave to the experts the works that are not within one's turf.

But despite the terrible experience, the original owner is now an aspiring businessman engage in "build and sell" of residential buildings for the lower and medium class clients. What is good about him is that he learned his lesson. In the projects he is implementing now, he maintains a hands-off stand as far as project management is concerned. Unlike before, he is now convinced that he can do better as a lawyer than a project manager. As such, he leaves to the qualified project managers the management of his projects.

My involvement in this project is to provide expert advice to the owner on technical matters in case the designer cannot make it due to conflict of schedule. As a personal friend of the owner and the architect and having been occasionally involved in similar projects, I provided assistance to the owner in analysing the progress of the work in the project versus the amount of expenditures at any given period. When the designer and project owner had almost parted ways due to differences in opinion, I took the role of the designer on matters within my expertise. I did it not for any single penny but for the sake of friendship and save my face since it was me who encouraged the owner to venture in this project.

Introduction

Construction industry is one of the leading sectors contributing to the country's economy and its share to the capital investments and employment help sustain growth.

In the Philippines, the construction industry has been attracting more and more players coming from both foreign and domestic markets. Large-scale projects are normally done on Build Operate and Transfer (BOT)

arrangements with the government instrumentalities. Some large projects are funded by loans or grants from funding/lending institutions such as the World Bank, OECF-JICA, ADB, etc. Domestic funded projects are now becoming more and more limited to high priority projects like school buildings, housing, power and water utilities, repair and maintenance of existing infrastructures and other related facilities serving the national interests.

Housing has always been part of the government's priority programs but up to now the backlog has not decreased considerably. The private sector and the government have been working hand and hand solve the problem of housing the poor and the low-income group but still it seems that bolder strategies must be implemented to achieve a more responsive results, otherwise, this problem could keep dragging over times.

Building construction is undertaken by both the private contractors and government implementing agencies mandated by its charter to engage in construction. These government agencies implement their own project either by contracting out with private contractors or do the projects using their in-house capability. They can not undertake aside from their own because competition with the private contractors would violate their charter.

In the Philippines, large and complex building projects normally require the services project managers to manage the construction activities. The owners of large projects would prefer to get the services of a construction management group rather than individual construction managers for better personality and track record. Although it entails more expenses to the owners, facts will show that an established project management company manages projects a lot better than individual project managers do.

For smaller building projects, construction management is done in-house by the owner's qualified engineers or architects. In some instances, this set-up was not effective because the project manager tends to see only the side of the owner while the side of the contractor is often looked at with less appreciation.

In government projects especially with foreign assistance from the international financing institutions, the loan condition normally provides for the hiring of a construction manager who would be responsible to the owner for all the co-ordinations necessary to see to it that the projects are properly handled from start to completion.

Construction management in the Philippines seldom extends to managing the property when it is already being used or in operation. Another responsible person, a property manager or a building administrator would come into the picture to see to it that the project is properly used, well maintained and taken cared of to its maximum useful life.

Aim of the Paper

This paper intends to present a typical way of implementing a simple private owned residential building in the Philippines. It will highlight the following:

- A review on the manner a 2-storey single detached residential building was implemented and managed by a non-technical person;

- An analysis of the important aspects of the different implementation stages of a construction project;
- Comparison of the implementation of this project with the traditional way of doing similar project type in the Philippines ; and
- Construction management insights viewed from a non-engineer or non-technical person's perspective.

Some Facts about the Philippines

Geography

The Philippine archipelago is located in the centre of Southeast Asia between the Philippine Sea and the South China Sea, east of Vietnam. The Philippine is composed of 7,107 islands.

Land Area, Climate and the People

The Philippines has a total land area of approximately 300,000 sq. km. It has a tropical climate, dry season on summer between February to April and wet season between May to January.

It has a population of about 68.7 million (July 1995) and a growth rate of 2.23%. 91.5% are Christian Malays, 4% Muslims, 1.5% Chinese and the rests are other ethnic groups. Negrito aborigines from Malaysia and Indonesia were the original inhabitants of the country are called the Aetas (dark skinned, short, curly hair, flat nose) but they are now becoming rare species due to inter-marriages with non-Aetas.

Languages Spoken

The languages spoken are Pilipino in Tagalog dialect and English. Some people belonging to the upper class also speak Spanish. Almost every region has its own dialect although Tagalog is widely used and understood by all Filipinos. About 90% of Filipinos are literate and can speak and understand English well.

Currency and Exchange Rate

The Currency being used is Philippine Peso, which has a conversion rate ranging between 38-40 pesos to a US dollar (average rate during the first quarter of 1999). The exchange rate varies almost everyday.

Religion

Philippines is the only predominantly Christian country in Asia. More than 90% of the population are Christians, of which about 83% are Roman Catholics, 9% are Protestants, 5% are Muslims and the rests are Buddhists other minor religious sects.

Culture

Filipinos have mixed cultures of Malays, Chinese, Spanish, Americans, etc. Hospitality and basic respect for others are common traits of Filipinos. Filipinos are very concerned about potential loss of face.

Divorce is not practised in the country, strong family ties are well within the heart of every Filipino.

Politics and Government

The government assumes a democratic form, its new President was installed on June 1998 for a maximum term of six years. There are three branches of government independent of each other, namely, executive, legislative and judiciary. The President is the chief executive of the land, legislative branch is headed by the Senate President on the upper chamber and the Speaker of the House on the lower chamber while the Chief Justice of the Supreme Court heads the judiciary.

Products and Exports

Philippines is an agricultural country with sugar, processed agriculture, and marine food products as some of the main exports. Other main exports are electronics and garments.

In 1999, the external current account balance is projected to be 3.5% of GDP while the gross domestic savings and gross domestic investment are projected to be 23.5 and 20.0, respectively of GDP.

The Construction Industry in the Philippines

Contributions to the Philippine Economy

Despite an economic slowdown during the first nine months of 1998, the contributions of the sector to the economy notably its share to capital investments and employment has helped sustain modest growth. However, its share to Gross Domestic Product (GDP) exhibited a decline of 7.5% in 1998 as compared to a 13.5% increase in 1997. Construction investments share to over all capital investments exhibited a 6.6% growth in 1998 based on a 45.5% share of Gross Capital Formation (GCF) during the first nine months of 1997 to a 48.5% GCF share during the same period last year. The uptrend could be attributed to pump-priming measures by the Government to provide for physical and social infrastructure facilities and the continued implementation of Build Operate and Transfer (BOT) projects. During the same period, the industry's share to total employment rose from 5.9% in 1997 to 6.1% in 1998, employing an average of 1.6 Million workers. In addition, the country's overseas operations generated about US Dollars 23.1 Million in foreign exchange earnings from both project and service contracts.

Construction Investments and Outputs

Past Trends

During the first nine months of 1998, real construction investment as measured by Gross Value (GV) in construction reached 74.9 Billion Pesos, a 3.5% decrease from the 1997 level. Government investments grew at a slow pace of 8.5% from 28.8 Billion Pesos in 1997 to 31.2 Billion Pesos in 1998. Meanwhile, private construction investment declined by 10% in the first nine months of 1998, a reversal of its 13.8% growth in the same period in 1997 due to the general slowdown in property development as well as the slack in demand for

commercial and industrial buildings, among others.

Output generated by this sector slumped by negative 7.3% from 43.2 Billion Pesos during the same period in 1997 to only about 40.0 Billion Pesos in 1998. The decline in the activities of the construction sector could be attributed to the adverse effects of the Asian currency crisis, high interest rates, and the wait-and-see attitude of investors during the 1998 election period.

The cost of construction as measured by the Implicit Price Index in construction rose by 4.5% in the first nine months of 1998 compared to 3.0% in the same period in 1997. A single-digit inflation rate has been maintained in general, despite an increase in retail prices of some construction materials with imported components.

Forecast

The year 1999 is expected to register slight improvements in the construction industry as the Government expressed serious commitments to pump-prime the economy by tapping a 20 Billion Pesos fund from external sources on top of the 1999 budget allocation in the General Appropriations Act (GAA) to finance the implementation of its infrastructure program, among others. Output generated by this sector is projected to grow at an annual average of 6.3% for the periods 1999-2004.

With the emergence of global and regional trade partnerships, construction activities in the country's export processing zones, industrial estates, agro-industrial and trading centres and growth corridors are expected to accelerate. Simultaneously, infrastructure development will also be given priority to help industrial sectors become more competitive in the world market. Other factors which are expected to contribute to the attainment of the 1999-2004 targets are sustained fiscal and structural fundamentals, continued improvements in the political arena, peace and order situation, liberalised investment climate, increased revenue collection, judicious use of resources and the accelerated efforts to promote further efficiency in agriculture and industry.

Contracting Sector

Consultants and Designers

These groups of construction industry players play an important role in putting into a blue print the ideas and requirements of the clients. The blue print would enable the clients to see how the project looks like when completed. In the Philippines there are several groups of consulting firms working for both private and government clients. Each organisation is observing its own code of ethics in the practise of their respective profession. Some of the known consulting groups are Cecophil, Cofilco, Asep, Pice, Cmap etc.

Government clients select consultants either by open or closed bidding. In closed bidding, proposals from consultants are submitted in two separate envelopes, the first containing the technical proposal while the other contains the price proposal which will only be opened if the technical proposal meets the client's requirement. Whoever presented the best acceptable proposal in both technical and financial aspects gets the contract. In an open bidding the consultants are invited to submit proposal more informally than in closed bidding. This is

normally a practise in private projects although government projects sometimes adopt this method if time is of the essence.

The Construction Managers Association of the Philippines is one of the known groups in terms of managing construction projects. Its members are accredited based on impressive experience record and valuable contribution to the industry. Some are past owners of large construction companies and known consultancy firms.

Construction Constructors Sector

Philippine constructors are licensed by the Philippine Constructors Accreditation Board (PCAB), an implementing board of the Construction Industry Authority of the Philippines (CIAP) which is a government entity attached to the Department of Trade and Industry. These contractors are classified as large, medium and small based on their technical and financial capabilities. Large contractors are given the authority to undertake construction activities in both the domestic and international markets. Small and medium contractors are allowed to work in the Philippine market only. The number of large contractors (Category AA and AAA) had steadily risen over the years and now stands at a 5.5% share of the total contracting population of 7,622 in 1998. Medium –sized contractors (category A and B) also increased its share of the population to almost 31% during the same period. Still, small contractors continue to outnumber the medium and large firms, covering 63.5% of the entire contracting population.

The Project

For the purpose of this paper, the author would illustrate one simple project with the following descriptions:

2-storey single detached residential building with a total floor area of 540 m² that is located at the heart New Manila. It was completed in 1998 for a total project cost of about 6.0 Million Pesos (150,000 US Dollars) in less than a year. The exterior and interior of the building were finished with textured rough cement painted. Marble and vinyl floor tiles were used in the ground floor while narra wood parquet materials were dominant at the second floor. Pebble washout finished was used the lanai and parking area. Coloured tegula roof tiles were used as roofing material, which is common in above average residential houses. A landscape contractor nicely landscaped the garden.

The project was completed four months behind the target completion of six months after the date started.



Figure 1

The Major Actors of the Project

The Owner

The owner is a lawyer by profession but with much exposure in construction related matters having been the Executive Director of one of the implementing Boards of the Construction Industry Authority (CIAP), a government agency mandated to carry out the policy making functions for the construction industry. The owner has just started to try a build and sell business, which is the trend among small-scale real estate developers. To construct the building, the owner did not hire the services of a general contractor but managed the project himself with the help of an architect-designer who happened to be a good friend. The owner secured himself all the necessary permits

The Architect-Designer

The designer is medium-size architectural firm who has been involved in the design of medium sized commercial buildings and individual above average residential buildings. It has been in the designing and consultancy business for more than a decade. The principal architect is a very good friend of the owner and he agreed to give his services for a fee of 3% of the project cost for a three months work. The fee did not include other services after the design stage is finished although the architect gave a word that he would make himself available for consultation if he has the time.

The Speciality Contractors

Three speciality contractors were hired on lump sum payment basis for the speciality works on electrical, plumbing, and finishing.

Landscaping was contracted out to a landscape architect that did the work using the owner's in-house workers.

The Project Financiers

A private bank provided about 60% of the total financial requirement at 18% to 22% interests. About 20% of the amount required by the project were generated from personal friends who lend the owner this amount when extreme financial difficulty arose. The owners had the remaining 20% of the requirement readily available from his own account.

The General Foreman

The general foreman is a middle-aged person who had various construction experiences in both the local and overseas projects. He had worked in the Middle East country as an assistance foreman of a British contractor doing several units of villas (houses), for five years and had more than ten years construction experience in the country.

He was hired by the project owner based on his extensive experience in construction and he was expected to oversee the entire project execution. He was tasked to work for the owner's interest and to exercise control and supervision on the speciality contractors' works.

Design Stage

In the Philippines, the designing sector has been advancing at a modest pace in terms of computer technology. Although computer aided methodology of designing had been known in the country for several years back, still there are designing firms who have not graduated from the old manual method. According to some designers they would probably acquire the modern technology of designing when they get bigger and complex projects.

In this project, the designer had prepared a complete design drawings and tender documents in a traditional way. The architect did not have the chance to use any computer software such as CAD because the project was simple and the owner had very minimal design requirement. He prepared several sketch drawings to put into place the owners ideas.

Project Planning

Facts will show that planning is vital in the success or failure of any undertaking specially in implementing construction projects. The objectives, which include scheduling of the project requirements such as the cash flow; construction materials; equipment and manpower resources must be carefully defined and analysed. In some more progressive countries which includes Sweden, it is important that in the early stages of implementing a project, the ultimate cost is determined even before the actual work begins. It is really an advantage to carefully analyse the quality and economics of the project during the early stage.

In this project, planning was initiated by the owner based on his gut feel and in close consultation with the designer. In some instances, the general foreman was asked to give suggestions and inputs. The cash flow was the first thing the owner considered. The projection was that the first 40% of the budget required shall be coming from his own source which he identified as follows: 20% shall be from his own pocket, 10% from other short term personal loans, and 10% on credit from material suppliers.

The projection seemed perfect because the bank is expected to release the first 50% of the loan after the project is about 40% finished which should happen three (3) months after the start date. While the project is on-going, the owner planned to scout for prospective buyer and offer the project at pre-selling price in the hope that so he could get a deposit or advance payment from the prospective buyer which he could serve as his buffer fund.

The owner did not anticipate many problems in scheduling and allocating the materials requirement s because he knew suppliers who are willing to accommodate his orders on credit for 30 to 45 days. Manpower resources won't be a problem are perceived by the owner because he has an in-house labour complement and he would get the services of speciality contractors who have their own workforce.

Project Organisation

On top of everything is the project owner. He works closely with the consultant to get an expert opinion on what would be ideal set to implement the project.

The consultant-designer prepared all the designer reports only to the project owner. As the need arises, the consultant maybe called for consultations even after the design stage. He will be asked to attend coordination meetings with the speciality contractors, if necessary.

The general foreman shall provide over-all supervision of the works to be undertaken by the in-house work crew and the three speciality contractors. He reports directly to the owner.

The project inspector shall prepare the necessary reports on the progress of the work and accounts of problems to be encountered, if any. He shall be working closely with the general foreman but reporting directly to the owner.

The speciality contractors shall be working with their own workers. They are under the direct supervision and control of the general foreman.

The owner has his own secretary, project accountant and project controller to work hand and with him on finance, administrative and auditing matters. The secretary shall take charge of purchasing the materials and equipment required by the project.

The banks shall be dealing only with the owner for the releases of the loan. The secretary shall deal with the bank in case the owner cannot make it.

Shown in figure 2 is the project organisational structure for better appreciation of the relationships of the major actors.

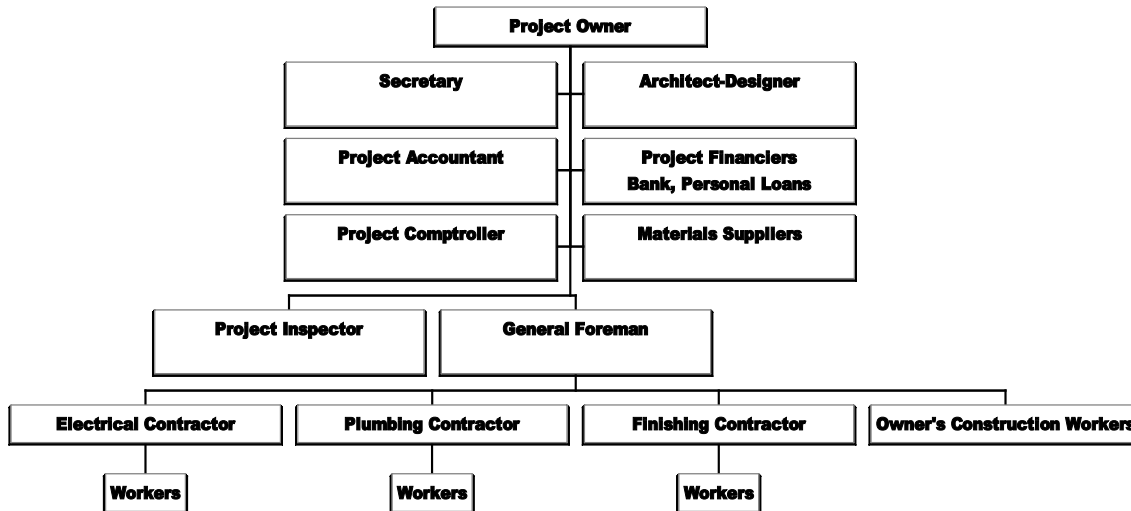


Figure 2

Selection of Constructors and Contracting

Public Projects

Pre-qualification of Prospective Contractors

A prospective contractor may be pre-qualified to offer his bid or tender for a construction project only if he meets the following requirements:

1. **Legal Requirements** - the prospective contractor must have been licensed as a Contractor for the current year pursuant to Republic Act No. 4566, must have paid his privilege tax to practise or engage in the contracting business for the current year, must comply with Administrative Order No. 66 of the Office of the President of the Philippines, and must comply with other existing pertinent laws, rules and regulations.
2. **Technical Requirements** - the prospective contractor must meet the following technical requirements to be established in accordance with the rules and regulations to be promulgated pursuant to Section 12 of P.D.1594, to enable him to satisfactorily prosecute the subject project:
 - Competence and experience of the contractor in managing projects similar to the subject project;
 - Competence and experience of the contractor's key personnel to be assigned to the subject project; and
 - Availability and commitment of the contractor's equipment to be used for the subject project.
3. **Financial Requirements** – the network and liquid assets of the prospective contractor must meet the requirements to be promulgated pursuant

to Section 12 of PD 1594 to enable to satisfactorily execute the subject project. The prospective contractor may be allowed to cover the deficiency in the required network through a line of credit fully committed to the subject project by a bank or financial institution acceptable to Department concerned.

Bidding

Construction projects are generally being undertaken by contract after competitive public bidding. Projects may be undertaken by administration or force account or by negotiated contract only in exceptional cases as follows:

- where time is of the essence;
- where there is lack of qualified bidders or contractors;
- when there is conclusive evidence that greater economy and efficiency would be achieved through this arrangement; and
- in accordance with provision of laws and acts on the matter.

All negotiations shall be subject to the approval of the concerned Department Secretary for projects within his limit of authority or the President of the Philippines upon recommendation of the Secretary if the project exceeds the prescribed limit of authority.

A bidder's bond, in the amount to be established in accordance with the rules and regulations to be promulgated pursuant to Section 12 of P.D.1594 should accompany the bid to guarantee to ensure that the successful bidder within the prescribed period from receipt of the notice of award would enter into a contract and furnish the required performance bond for the faithful and complete prosecution of the work specified in the contract documents.

To guarantee the faithful performance of the contractor, he shall, prior to the award, post a performance bond, in an amount to be established in

accordance with the rules and regulations to be promulgated under Section 12 of PD 1594.

Award of Contract

The contract may be awarded to the lowest pre-qualified bidder whose bid as evaluated complies with all the terms and conditions in the call for bid and is most advantageous to the government. No award of contracts shall be made to a bidder whose bid price is higher than the allowable government estimate (AGE) or the approved agency estimate (AAE), whichever is higher, or lower than 70% of the AGE. The AGE shall be equal to one half of the sum of the AAE and the average of all responsive bids. For the purpose of determining the average of responsive bids, bids higher than one hundred twenty percent (120%) of the AAE or lower than sixty percent (60%) of the AAE shall not be considered. No negotiation will be allowed to bring down the bid to the level of the AAE or AGE.

Private Projects

Selection of Constructors

The manner of selecting contractors in private projects in the Philippines is more informal compared to public projects. Selection of contractors is based more on trust and acquaintance developed between the owner and the contractor. In some cases, the designer-consultant plays an important role in the selection of contractors. The owners give the consultant's recommendation greater weight on the choice of contractor. In some larger projects some owners would opt for a more formal public bidding to select the best offer from the best contractors. This method, however, is less popular to some owners because it requires longer and more complex process than the informal tendering approach.

Unlike the traditional way of selecting contractors where the client has to advertise in the newspaper to be able to get most number of bidders, the owner in this project selected the contractors personally relying more on trust and familiarity with the people he had worked with in the past. The manner by which the designer was selected was also based on personal choice of the owner since the principal architect of the design outfit is a very close friend. The author would like to believe that the owner was able to negotiate for the minimum fee with the designer. The designer was paid 3% of the project cost but in other similar project the prevailing rate is between 5% to 8%.

The speciality contractors was paid based on the actual cost incurred plus a certain amount ranging from 5% to 10% as profit. The speciality contractors supplied consumable materials and equipment necessary for their respective works. Bulk of the materials was owner supplied.

Contract Forms & Conditions

There is no standard form and conditions of contract in both government and private projects. Contracts for government projects normally adopt appropriate contract

provisions of the FIDIC although in some cases the parties can agree on minor things.

Unlike in government project contract, contract conditions for private projects are less stringent and the parties can stipulate the terms they want. Sometimes, there is not contract at all, an informal agreement between the designer or a builder and the owner is enough especially on small projects of very short duration.

Government contracts normally provide for settlement of disputes by arbitration with the Construction Arbitration Commission although there are other venues available to conflicting parties.

Procurement and Purchasing

The owner did a lot of canvassing to get the best price from the market for all the materials requirement of the project. His wife was very much responsible for being able to get the best terms from the suppliers. Normally the suppliers won't agree to sell their materials on credit specially the rare and expensive stocks. In some cases, materials suppliers would agree to accommodate special buyers on 30 days credit or a 30 days post-dated check payment. In this case, the owner's wife got a 45 to 46 days credit for materials like marble tiles, plywood, and some minor finishing materials. For the cement requirement, about 40% of the requirement were bought on credit for 30 days.

Project Financing

About 60% of the financial requirement of the project were secured from the banks on a short-term basis payable in one year. The banks offered long term-loan arrangement for a much higher interest and charges but the owner was too scared that inflation might go high and the interest rate would follow. So he opted for a short term-loan on the assumption that he could sell the building some few months after its completion and he would have the money to pay part of the loan and some money to start another building. The owner had previous arrangement with three of his personal friends also in build and sell business to lend him on short duration some amount in case he needed money very badly. The owner made sure that he has in his account at least 20% of the funds requirement to be able to make a good start.

Budget and Budget Control

The budgetary requirements of the project was prepared by an accountant hired by the owner for this undertaking, who used to be a budget officer in state owned corporation involved in implementing one of the housing programs for employees of private companies. She had not had any previous involvement in any construction business. The budget came out to be a tight one with very slim provisions for flexibility in case the targets are not realised. The budget plays around between the minimum and the maximum that the owner is prepared to spend.

The project controller was to be responsible for giving signals, at any stage of the project execution, to the owner that the budget is exceeded. The person was expected to

do his job well because of his extensive exposure to auditing works. The budget estimate is shown below:

Table 1: ESTIMATED PROJECT COST (US Dollars)

I. Design (A & E Services)	5,000
II. Construction	108,000
a. Civil Works	16,200
b. Masonry	18,240
c. Carpentry	12,960
d. Roofing	10,800
e. Finishing	20,600
f. Fixtures	16,200
g. Painting/Varnishing	6,480
i. Miscellaneous Works	6,520
(roughing-in for electrical & plumbing)	
III. Administrative Expenses	37,500
a. Overhead	17,200
b. Bank interest & other Charges	10,800
c. Permits, taxes, etc.	9,500
Estimated Project Cost	150,500
IV. Cost of Lot & development	<u>100,000</u>
Total Estimated Project Cost	250,500

Information Technology

The project was designed without the benefit of any computer-aided facilities because the owner as well as the designer felt it was not necessary. What was adopted for the project was an in-house monitoring system where the project inspector would be required to prepare reports on a daily, weekly and monthly basis about the activities on site. The report should likewise indicate the accounts of problematic areas identified to cause delays of the critical activities. A Bar Chart and an S-curve were to be used to indicate the periodic progress of the work. PERT/CPM was prepared for the project although the owner as well as the general foreman has limited appreciation of this management tool.

Experiences to use in Future Projects

The project may be implemented although the approached adopted in the design stage had deviated a lot from the traditional way. It is however felt by the author that it could have been a lot easier on the part of the owner and other parties concerned to implement the project had the following considerations were made:

- Facts will show that a construction manager, although may not be an absolute requirement in any construction project can better manage the project than a foreman can. This may be true because the construction managers generally are more equipped with the necessary technical knowledge and expertise;

- A good budget is an essential factor that determines the success and failure of any project. It is best that the minimum and maximum amount is defined very clearly in the project objective before the actual implementation starts;

A general contractor may be a better option than more number of speciality contractors or subcontractors because problems in co-ordinating any aspect of the works could be less burdensome if there is just one party to deal with; and

The consultant's scope of work should be clearly stipulated in the agreement so that the owner won't have a hard time fitting into the consultant's schedule in case his services are required in the project.

Conclusions

Based on the foregoing, the design stage is the most crucial part in any construction project. It is in this stage that important considerations in finalising a decision to push through with the project are crystallised in the minds of the decision-makers. Important management tools such as project organisation, project financing and budgeting schemes, purchasing and procurement schedules, contractual arrangements and provisions are developed in this stage which would eventually be used as basis in the succeeding stages of the project.

It is therefore very important that everything in the planning stage was understood and cleared to the owner and other concerned parties. There is no substitute to a good and well-planned endeavour, and for sure a positive outcome is success.

Production Stage

Tendering and Contracting

The owner had encountered difficulties in dealing with the speciality contractors. He felt that he could have avoided all the headaches he had from these contractors had he contracted just one general contractor. He thought that he could save some amount in this project because the general contractors normally charge higher than the speciality contractors. In this case the speciality contractors had that attitude not to work well unless they are paid without any delay and that contributed a lot in the project delay. He incurred additional overhead and interest expenses in prolonging the works in the project.

He realised that the less personalities to deal with the lesser problem he would have. This was proven when he had serious difficulty in raising enough money to pay the progress billings of the three speciality contractors. He almost had a case for estafa when he issued post-dated checks that bounced back for insufficient fund. The two contractors were more patient but the third one insisted on collecting the payment as scheduled and did not want to wait for at least a week until the bank released the loan to the owner. The owner had to get an emergency loan from a loan shark to call off the estafa case prepared by the speciality contractor.

The contract with the designer was not also a smooth experience to the owner. The principal architect, despite being a good friend has caused the owner's temper in one incident when the architect walked out of the meeting due to a heated argument regarding the erratic schedule of the architect to attend the consultation meetings with the owner and the rests of the actors on site. The consultant claimed that such consultation meetings are no longer part of the services paid to the designer and such service is being rendered in the spirit of friendship.

Because the owner believed he couldn't afford to change the consultant he has to take things as it is so he asked for an apology to the architect. The owner felt he was at the mercy of the consultant and he managed to leave with it until the project was finished.

Production Planning

During implementation, some revisions and adjustments in the original plans had to be done to conform to the actual site conditions and ensure that even minor details were properly attended to. From the original location underneath the thick branches and leaves of an old acacia tree of the adjoining property, the laundry and drying area had to be re-located from the right wing corner to midway so as to take advantage of the afternoon sunlight and get rid of the harmful tree sap that might fall in the open area.

In the second floor, the owner had to install an adjoining door between the masters' bedroom and the girls' room for better access as per the requirement of the would be owner. In the music room, the would-be owner requested that a mini audio room be provided and he wanted the best acoustic insulation be installed. All these adjustments entailed additional cost on the project.

Procurement and Purchasing

At the beginning the owner was able to maintain sufficient stock of materials for the two months activities. At the start of summer, 2 months after the project was started, a lot of construction activities were undertaken and some materials like cement and steel became scarce and the prices went up. Although the owner's order were placed earlier he did not received the right quantity on time because the suppliers gave priorities to buyers paying on COD (cash on delivery).

Because cement was the most critical construction material required for the project critical activities were delayed. The owner had not much cash then because the bank had not released any amount yet. The release of money from the bank would be made only when the project is 40% finished. The owner being very resourceful borrowed the some bags of cement from four of his friends also engaged in build and sell business. When the bulk of his orders came, he gradually paid his friends. But his problem did not stop from there because the steel supply in the market fell dramatically from the normal level due to high importation cost of raw materials. The natural consequence of course is the low stock level in the market and drastic increase in price.

The owner again tried to convince his friends to lend him part of his requirement for steel but to no avail

because all of them were on the same situation. Their problem was even worse compare to him because they have bigger projects and they have a commitment to deliver to their clients.

The owner's problem in procurement and purchasing of materials was a persistent one from start to completion contributing a lot in the delay of the project.

Quality Assurance

A project inspector was used in the project to check on the activities being undertaken by all the speciality contractors and the in-house workforce. The person doing the quality control was an experienced site engineer previously working with one of the leading Construction Company in the country. The guy was as strict in details and he cannot accept something inferior than was specified in the drawings and specifications. In some instances he would call the attention of the foreman to require the speciality contractors do some repairs. Somewhere in the middle of the project implementation, he earned the ire of one speciality contractor who was required to demolished substantial installed portion of his finishing contract. In one instance, he almost had a fight with the general foreman on the issue of the extent of his authority because the foreman felt he is overdoing things.

The project owner had to make some adjustments on the authority given the foreman and the project inspector to avoid further irritants. The owner ordered the general foreman and the project inspector to work together in ensuring the quality of the project when it is finally completed. This set-up proved to be ideal because the building turned out to be a nice building and the design objective was met.

In most projects such as this one, the owner make sure that the finished product is of good quality otherwise he will have a hard time convincing the buyers buy the building from him.

Economic Control

Budget Review

The project was scheduled to be completed six months after the start date. After the third month, major delays had become evident and the owner felt it was necessary to make adjustments on the schedules and the cash flow projections. At that time the owner is under pressured by the prospective buyer of the building who had paid 10% of the downpayment required by the owner and the project is barely 10% completed. The bank was on the look out, because the owner was asking for the extension of the loan duration for another six months.

The owner required the project accountant for the actual amount spent to be able to compare with the original budget. The project controller was also required to give an account on how far have the expenses go in terms of accomplishment in the project.

The review indicated that due of the delays incurred the expenses for overhead, cost of money, direct labour were already off the original budget by about 6%. The

owner had a feeling that it could be more when the price differential for the materials would be added.

At this stage the owner made a firm decision to shorten the construction period by making available all the material requirements of the project at all cost so that the workers can move. Overtime works became a must to most of the in-house workers while the speciality contractors were enjoined to worker faster than the usual pace.

The owner injected in the cash flow substantial extra amount of money to cover the cash requirement for materials.

On the fourth month, positive signs of improved accomplishment were noticeable. On the sixth month, the project was about 40 % finished. This gave a relief to the owner because the bank released the much-needed money to pay some personal loans and the suppliers so they would extend the owner's credit line. The prospective buyer failed to deliver the additional downpayment as agreed upon. It was intentional on the part of the buyer since he had not fixed his mind whether or not to buy the property. That money was intended to be part of the cash flow for the last quarter of the project. As it is, the owner is not yet released of the financial burden.

The table below would show the actual expenses incurred by the owner to finish the project.

Table 2: ACTUAL PROJECT COST (US Dollars)

I. Design (A & E Services)		5,158
II. Construction		112,734
a. Civil Works	17,010	
b. Masonry	20,680	
c. Carpentry	13,960	
d. Roofing	10,000	
e. Finishing	23,760	
f. Fixtures	16,000	
g. Painting/Varnishing	6,804	
i. Miscellaneous Works	4,520	
III. Administrative Expenses		59,200
a. Overhead	21,500	
b. Bank interest & other Charges	16,200	
c. Permits, taxes, etc.	11,500	
Actual Project Cost		171,934
IV. Cost of Lot & development		<u>100,000</u>
Total Actual Project Cost		277,09

Experiences to use in future projects

To implement a construction project is believed to be not everybody's turf. No matter how small or simple a project is, there are uncalculated risks that could arise during implementation stage. More often than not, great percentage of deviations from the original design, budget and targets are common experiences among people who had a chance to be involved in implementing construction projects.

As regards this project, the following lessons would be an eye opener to other people who would be interested to do similar project in the future:

Implementing a construction project is not an easy task, moreso, if important considerations were not carefully studied during the planning stage. Things could turn out to be entirely different from assumptions and this could create a lot of problems in the production stage;

Cash flow is a very important tool in implementing a project. It may be compared to a fuel in an automobile, such that the motor won't function without it;

A tight budget won't work; it is best to defer implementing the project until all the possible sources of funds are assured. The bank may not serve the purpose of the borrower if he cannot deliver what was required of him.

In scheduling the resources; such as materials, tools and equipment, it is good to set aside provisions for the effects of market forces on price, stock level and the attitude of the material suppliers on critical periods;

As what happened in this project, the purchasing and procurement personnel failed to anticipate that prices of materials could go up because there was not enough supply in the market.

It may be a wise move to consider the requirement of the end-user or the would be owner as early as the design stage to avoid major revisions or changes on the installed portions just to satisfy the customer. This anticipation could save on cost and unnecessary delay;

It was noted that at least two cost items in the budget, overhead costs and interest charges could easily generate unnecessary expenses when the project schedule is exceeded. The owner could have earned more than 1.5% profit had the project was completed as planned; and

The role of a project manager can be substituted by somebody who is not as knowledgeable as a responsible construction project manager but it is likely that the outcome is nothing more than a mediocre.

Conclusions

It is very evident that any delay in the project at any stage, means additional cost and to a certain extent losses to the project owner. In this project, the owner could have generated more profit had the target completion schedule was met. He could have avoided unnecessary expenses for interest paid to the bank and increased overhead cost.

It is important that the money required by the project is in-placed before the actual production is started. The progress of the works in any project is determined by the amount of money being injected to it.

Production stage is where all the unexpected could happen and if no courses of action have been planned to overcome such circumstances, the project suffers and the owner bears the consequences.

Property Management

When the project is completed and turned over to the end-user for its specific use, the last stage of construction management takes into form. This is known as property management, which means taking care of the completed project as property with legal responsibility. Property with legal responsibility means that the property should serve the client the purpose for which is intended to. And to be able to deliver to the clients the expected services it has to be properly managed at all times.

The quality of property management would determine the long-range profitability in the project as considered in the design stage.

Life Cycle Economy

There are two cycles of life a property would go through. The first cycle is manifested in an objective starting when the structure is constructed and ending when it is demolished. The next cycle is seen in an objective that depicts the property to the owner. Different owners have different reasons for having the properties and have likewise different patterns of investments to maintain the life of their properties. Market conditions are continuously changing with times and it is not easy to tell what is going to be relevant for tomorrow from today's situation. What is important is to be able to control the uncertainties and have access to as much relevant market information as possible. This way, chances of success in the property management would be better.

Maintenance Planning

Maintenance planning is not so popular in the Philippines; in fact both the designers and the owner sometimes overlooked this aspect. However, in some cases specially if the owner intends to hold on to the building and have no intention to sell it, the owner becomes more conscious about how the maintenance should be done and how much would it cost him. Others may not mind about the maintenance requirements of the building because they thought the first three to five years life of the building is just perfect and no major maintenance work is necessary.

Connection to the Design Stage – Feedback

When the project is completed, the owner of the end-user takes over. In most cases, the owner appoints a building manager or in the Philippines he is known as the building administrator. The owner has the following reasons for appointing a building administrator:

To make sure that the building is manage in such a way that the requirements of the clients are satisfied at all times,

To make sure that the building is properly maintained, and

To make sure that the building is well preserved to attain its maximum life.

Some owners may have unique reasons for appointing a building administrator or property manager but basically the reasons mentioned above would always be considered.

It is however surprising to find out that at this stage, very seldom we could see a complete programme for operating and maintaining the building.

In this stage, the building manager or administrator would soon discover problems that require difficult solution or sometimes no solution at all. Such unseen defects or deficiencies could have been avoided or corrected in the design stage had the designer gave serious thought about property management aspect of the project.

It is also good to see the designer talk with the people implementing the project so he could find out for himself if there are complains in the design he prepared and come up with ways to improve or even perfect it.

In this project, it was clear from the start that the designer's services would end when the design stage is completed. As it is, the designer may or may not be interested to see for himself how the production was going on and how would the final outcome of the project be. The designer did not bother to hear the comments of the speciality contractors on the electrical layout and the location of the septic vault. The speciality contractors suggested a scheme, which they felt more appropriate on the project, based on their previous experience. But since the owner had much faith on the designer, those suggestions were not given due considerations.

Also in this project, the maintenance manual would in a way help the end-user or the owner but because it did not take into account the maintenance budget, the owner would still have to plan on how to carry out the building maintenance.

Being the owner who has full control of what to do with the completed building, he opted to forget all about the maintenance aspect and pass it on to the final owner.

Experiences to use in Future Projects

The following are very useful experience, which may be useful in implementing future projects to ensure higher quality of investment in any building project:

- It is important that as early as the design stage of a project, planning for management and maintenance must already be considered so that it would not be a hard job to whoever is going to it;

Management and maintenance cost must not be overlooked because it could entail expenses which may put the property owner in trouble if he did not plan for it;

Property management cost includes several cost indicators such as maintenance costs, running costs and capital costs. It is important to have a clear idea of the grand amount so that necessary planning and preparation could be done during the early stage of the project,

Effective and responsive property management could result to prolonged useful life of the property to be able to recover the capital costs and eventually generates more profit to the owner.

Conclusions

From the foregoing, it was established that construction project management should not end upon project completion or when the structure is completed. It should extend up to when the property has reached its ultimate useful life. It is important that the aspect of property management is well incorporated in the design considerations and the corresponding budgetary estimate for all the cost indicators are planned and calculated during the early stage.

It is likewise important that the property owner or the property manager is well abreast of what is going on in the property market. They should be able to come up with good forecast of how relevant their property is in the near future, based on the information at hand and from outside sources. This way, a decision on what to do with the property would be a lot easier to make.

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