



CHAPTER IV

INVESTIGATING CONTRACTORS' PROBLEMS IN CAMBODIA AND THAILAND

4.1 Background

The construction survey in Cambodia presented in this chapter describes the whole situation and data that are collected from secondary and primary surveys. All of these data are importantly needed to show the sectors involved in the construction industry in Cambodia. The data collected from the preliminary survey in Cambodia is described and shown below.

4.2 Preliminary Survey in Cambodia

The research data collection started with primary surveys which had been conducted twice. Two trips had been taken for the primary surveys or data collection to gather the information and supporting idea regarding the situation of construction industry in some selected areas. The selected areas were capital city, Phnom Penh, and business and tourism city, Siem Reap. These two business cities are most developing among others cities in Cambodia. Most housing buildings, infrastructures and transportation have been increasingly booming in the past few years. The last city for the primary survey was also conducted in a business city, Sihanoukville, the city next to the sea with a sea port, cargo transportation and places for tourists.

4.2.1 *Construction in Phnom Penh Capital City*

The Phnom Penh Capital city is located at the intersection of four water bodies: upper and lower Mekong River, Tonle Sab River, and Basac River. These rivers provide potential freshwater and river ecosystem as important resources for sustainable environment condition, natural beauty and prosperous culture for people of Phnom Penh Capital City from the past and the present. Phnom Penh is lying in front of Mekong River that is the main river in Asia; its length is 4,200 km. Phnom

Penh covers 375 Km² most of which is rice field of 11,401 hectares, wetland, lake, settlement and roads of 26,106 hectares.

In Phnom Penh city, there are lots of housing buildings consisting of apartment buildings or flats. They are built everywhere, especially in the suburb of Phnom Penh. Some developers are tycoons who have bought empty land or some old and small houses and developed them into new commercial buildings for resale in real estate business. Not only is the commercial buildings construction booming, but also large projects such as condominium construction and small town development which are called economic zone development are the main recent construction involved in the Cambodian construction industry nowadays. All of these have indicated the trend of construction industry and buildings in Phnom Penh for the last few years and in the near future.



Figure 4-1 High-Rise Building Project in Phnom Penh



Figure 4-2 Steel – Imported Material for a High-Rise Building Project

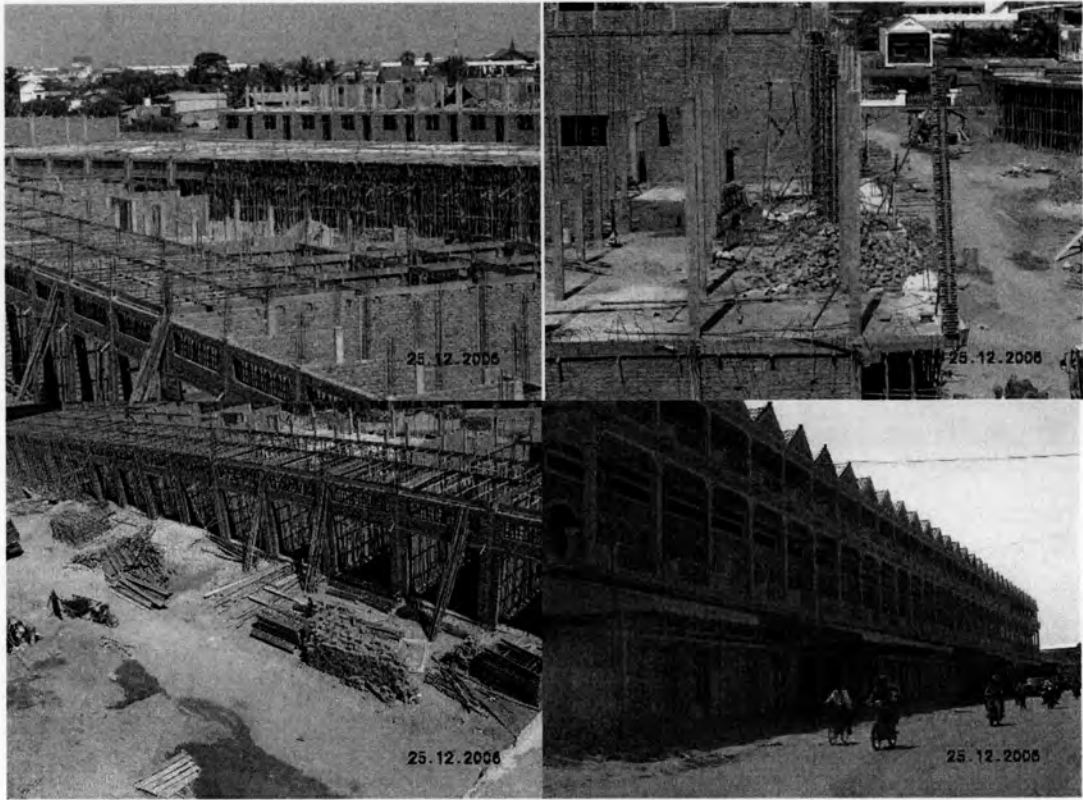


Figure 4-3 Commercial Building Construction Booming in Phnom Penh



Figure 4-4 Picture of Interviewing with a Foreign Construction Company from Malaysia



Figure 4-5 The Large Project Plans on an Island in Phnom Penh, Cambodia

❖ **Information by Interview with Public Sector**

The first day of the primary survey was the meeting and interviews people in the public sector department. The interview was concerned of the construction problems related to public projects; it was conducted with the director of Public Work Research Center (PWRC) of the Ministry of Public Works and Transports.

The responsibility of this PWRC department is to:

- elaborate the technical standards and prepare for their execution,
- study, research and prepare the project of public constructions (Road and Bridge Construction)
- value the construction, quality of materials and new technology for the execution of Ministry works.

PWRC, which is a department that supports and develops infrastructure all over the country, has regulated national or local standards of construction for Cambodia based on international standards which are appropriate to the situation of the country. And now it has already enforced the standards for road construction such as pavement design and geometric design standards. Standards for roads have been published, issued out to public sector and sold to private contractors and subcontractors. More projects to develop infrastructure for a sustainable purpose have been on the ways. However, the master plan network in Municipality has just started recently including the master plan of roads.

Moreover, they just announced a railway project to be repaired from Aranyaprathet commune, at the border of Thailand and Cambodia, connecting Phnom Penh. It is a part of the Asian railway project in which railway will be constructed to link countries in Southeast-Asia to China.

However, Cambodia is not yet interested in the Rapid Transit developments because the situation of the country has not called for such a project. That is, it is not yet the main problem in the economic development of the country because transportation in Phnom Penh is currently not serious. Nevertheless, government can still manage and control this sector in order to avoid any troubles or irresolvable problems in the future.

Cambodia still has limited number of professionals who are graduates of Civil Engineering and related fields to support in the actual engineering works. Not many engineers are involved in some big projects. That's why some contractors or owners hire foreign engineers including consultants from some developed country to manage the entire projects.

Concerning material suppliers, most steel is imported, mostly from neighboring countries, such as Thailand, Vietnam, and also from China. Although steel imported from Thailand is better in quality but it is more expensive than others'. In the year 2008, two more cement manufacturers will be established in Cambodia added to the two existing ones.

60-70% of projects in infrastructure and public buildings in Cambodia are subsidized by international grants and loans. Japan is the most important granter and loaner for Cambodia.

❖ **Information by the Interview with Foreign Construction Companies**

The construction information regarding building and infrastructure project by foreign contractors were conducted. There were amount 6 foreign contractors that the survey has been done with. By the interviews, most of materials supplied for any projects are mainly imported from Thailand, a neighboring country. It's estimated around 70 % of construction materials such as asphalt, steel, cement are the main products that are needed from Thailand. But construction wood, sand, brick, stone are local products.

For any projects, including housing and infrastructure works, they have to bid and compete with other companies as a routine in global market. For housing projects like flat, apartment, industrial building, hotel and others, they need to submit the drawings and architectural drawings to the Ministry of Land Management Urban Planning and Construction. If it's the public works, the drawings have to be submitted to a consultant who is under the Ministry of Public Works and Transports, for a review on their technicality and standard. Then they are given back with comments for modification if necessary. For some big projects like roads, high buildings, they have to incorporate as a joint-venture with other local construction firms or ones from abroad. Most previous projects are constructed by foreign a contractor which is a contractor and a big local construction company in Cambodia, contractors from Thailand and also from Korean construction firms. The most recent big project that foreign contractors won was the road project that was actually constructed with a loan from Asian Development Bank (ADB).

Mostly the contractor has hired some subcontractors to help and collaborate in some activities. This is a way to accelerate the project with no-delay; most of the delays in construction are from weather conditions, especially in rainy season. Subcontractors must be the ones with satisfaction guarantee and experiences.



Figure 4-6 Construction Site of Phnom Penh Airport Pavement Projects

For the problem about labor, some contractors need of skilled labor working on site. Some of workers are selected from the local area where the project is located for example, brick-layering workers, painters, steel binders, but sometimes they are needed to get training before placing on the job. Only 20% of them are selected from the main office in the capital city, like site engineers, skilled carpenters, supervisors, etc,



Figure 4-7 Road Rehabilitation Activities in Suburb of Phnom Penh

❖ Information by the Interview with the Domestic Contractors

There were amount 9 domestic contractors to be conducted with the interviews in Cambodia. From some project, some firms hire about 2000 workers working for all projects. However, the wage is just only \$2 - \$3 per day for unskilled worker, whereas \$4 - \$5 for skilled laborers. It is hard to find skilled laborers because most workers are not trained. Similarly, the number of engineers in the company is still not enough. Therefore, it hires experienced engineers from overseas to manage some projects.

All support staff and employees are Cambodian. The firm can select and hire them from the pools of graduates from public universities and technical institutes, and also from private universities in Cambodia.

Most of the construction materials used in any projects of the domestic contractor are imported from Thailand which is the first country to supply the construction materials to Cambodia with satisfaction and assured quality. Other countries are Vietnam and China. Comparing the price of construction materials, products imported from Vietnamese and Chinese companies are cheaper than those from Thailand.

Currently, suppliers cannot provide enough pre-cast concrete products for construction. That is why there are few construction projects that enjoy pre-cast products. As a result, technology in handling pre-cast concrete products is not so advanced in Cambodia.

To improve the structure and value of the company, the domestic contractors have competed with other big domestic and foreign construction firms, such as Korean, Thai, Japanese and Chinese construction firms in Cambodia.

He described the quality of some construction owners in Cambodia, for example, Japanese owners who are reputable for punctual payment to their subcontractors and acceptable for fulfilling the specifications and maintaining the quality of construction. On the contrary, both Thai and French company owners pay less to their subcontractors. Moreover, Thai company owners are always late in payment for construction projects to subcontractors.

4.2.2 *Construction Sector in Siem Reap*

Siem Reap is the tourism city in Cambodia, known as the city of temples, such as Angkor Wat temple. A temple complex is the main tourist attraction that draws tourists and boosts the economy of the city. With increasing amount of tourist visits Angkor Complex, like other sectors, buildings and housings are notably known as the main sectors for this study in the city. Along the main roads in this city, new nice hotels are lying and some hotels are still under construction. Most of them are four star hotels and few five star hotels. Not only have the hotel constructions increased, but also the guesthouses are subject to be noticed and studied.

This indicates that the construction industry in Siem Reap is also the main area to study for a careful planning. The study also includes the labor force and material suppliers to support any projects around the city.



Figure 4-8 Picture of Interviewing with Foreign Contractor in Siem Reap

The national roads 6A, 7, and 6 link Phnom Penh to Siem Reap. Even though the housing and population have grown from year to year, the road accidents and traffic are the main problems to solve. Most roads are in standard condition with 2 lanes of Asphalt smooth surface, but in some areas, roads are still in a poor condition. The settlement along the road to Siem Reap is not so far from the edge of the road.

People do not pay much attention to cars on the road; they let their animals cross this national road at their own will. This indicates the lack of traffic precaution in provincial areas. Most people in provincial areas usually use wood as materials for housing construction.



Figure 4-9 National Road and Housings along the road from Phnom Penh to Siem Reap



Figure 4-10 Construction Site of Five-Star Hotel in Siem Reap

4.2.3 Construction Sector in Sihanoukville City

Sihanoukville known as Kampong Som is a seaport in southern Cambodia on the Gulf of Thailand. It is the only harbor in Cambodia and its beaches make it more popular as a tourist destination. The city is named after King Norodom Sihanouk.

National road No. 4 takes people from Phnom Penh to Sihanoukville. This road is in a good condition with two lanes and asphalt pavement. Sihanoukville International Airport is located in this city. The planned flights between Sihanoukville and Siem Reap may encourage visitors to Angkor temples in Siem Reap to extend their stay. For some people, however, Sihanoukville remains an unattractive destination compared to seaside resorts in neighboring Thailand. The majority of the recent development in the region is fueled by greed and the proceeds of narcotics trafficking through its port.

Construction industry in Sihanoukville has not yet grown as much as those in Phnom Penh and Siem Reap, but it have significantly grown since the last few years. Some hotels have been recently built in this city. The main road in Sihanoukville has just been rehabilitated in recent years funded by the government.



Figure 4-11 International Port and Housing Bird View in Sihanoukville

According to an interview with one manager of domestic contractor, there are many construction projects in this city. Some are housing projects and some are new hotel buildings, and the biggest development is planned by the government. It is a plan to build a town with buildings lying along the beach. This town will be a large scale of construction which covers a large area providing housings, school, hospital, shopping area and attractive tourist places.

There are not many construction firms in Sihanoukville. They are just only small firms located in this city. For the big projects such as road, bridge and hotel or industrial building construction, big construction companies from Phnom Penh usually bid and win.

Most of construction materials and equipment for supplying in Sihanoukville have been imported either from Thailand by ship or from Phnom Penh by truck. This city has a big international seaport for serving as import and export station. Some construction materials imported by ship are, for example, steel, cement, bricks and roofs. All workers in Sihanoukville are selected from local people, but engineers and supervisors are sent from the main office where the contractor companies are located.

Referring to an interview with the deputy director of department of Public Works and Transports of Sihanoukville, there are totally 79.6 km of road length in this city. Formerly, the main road or boulevard was in a poor condition and most roads had never been repaired, but in recent years, the ministry has provided funds to support and repair the main road and also pave some roads with laterite.

4.3 Classification of Contractors' Problems in Cambodia

4.3.1 Contractors' Problems at Industry level

The problems occurring for the contractor in Cambodia at industry level were collected and classified into 7 different categories. Those categories are construction regulation, government, human resources, material and machinery resources, financial, coordination and communication and marketing.

4.3.1.1 Construction Regulation Problems

- Not clear construction regulation in country
- Change of construction regulation

Regarding the construction regulation which affected to the construction project work, Cambodia has still poor management of construction regulation in the nation. Ministry of Urban Planning, Land Management and Construction has a role to manage and control all of private construction projects, such as building and housing

projects from the small to the large ones. During the building or housing construction, sometimes they had to stop their project for a while due to disagree from local relevant official related to construction regulation. Before starting the project, they allowed it, but the official still may stop them without legality. Cambodia still has no yet the local standard and code for the construction structural design. For every project, the agency has just checked only the architectural design, but they did not check all of structural design drawings. That is why during the construction project, the contractor may have a conflict with that relevant agency regarding the design standard and code. Additionally, the contractor may encounter the problem related to the change of construction regulation in the country, for example recently the contractors have to conserve a big amount of budget in the national bank in order to prevent their business and clients. So, this problem may affect the medium and small contractors which their financial or capital is less.

These problems may cause the contractors may face the construction delay in their project in hazard and led to high construction cost overrun and long duration due to no legality of regulation. They also lead to the corruption in the construction project, especially for the contract arrangement, bidding process and tendering arrangement of the construction project.

4.3.1.2 Problems by Government

- Delay payment in public project
- Absent of cost data in construction
- Lack of government policies and legality for construction industry development
- Poor contractual procedures

Mostly, the public project in Cambodia has been gained by the loan from the ADB, World Bank or other aid from Japan and other countries. By the interview with the contractors in Cambodia, it is found that the contractors often met the payment delay when they worked for the construction public project. The government of Cambodia doesn't have the agency that is responsible for the cost data in construction and also they have lack of policies for construction and any guideline for the construction industry development. Cost data in construction is important for the contractors

working in Cambodia, especially the foreign contractors that just come to start new project in Cambodia without past experience in this country. If there is no data of cost, for example, material and equipment price, labor average wage and other relevant data in construction, the new foreign contractors have to waste their time to find it. Perhaps, they may face the wrong or error in their project cost estimation due to this problems that ignored by government of Cambodia. Until now, Cambodia still has no the contractor association in the country that help solving dispute for the engineer and contractor. The contractor association may help them keep their past experience and good performance. The association may create the cost data and solve any dispute or conflict within the contractors' participant smoothly. So, the government has a role to promote in creating this association successfully in the near future, because it is also important to develop the construction industry in the region.

These above problems would impact the project schedule for contractors. That leads the delay of the project, proper project cost estimation. Some contractors can not solve all of dispute that occurred in their organization by themselves, they need the legality from the government to help. No contractor association, the local engineer has no license providing, then the contractors is hard to identify the skill and experience of local engineers. It causes the difficulty in selecting the right skillful engineer because there is no license from association. To create the contractor association, it has to have the capital to support. But the government still has not the expense for this procedure.

The delay of payment in public project is caused from the procedure of capital and budget transferring in the ministry where the owner or director of that project is. The procedure to claim the budget for the project has taken a long period in Cambodia.

4.3.1.3 Human Resources Problems

- Most of unskillful domestic labors
- Low productivity of local workmanship
- Low quality of local engineers
- Lack of local engineers and experts
- Poor design of local engineer in large project

By the interview survey with the contractors, Cambodia has a lot of unskillful labors and local engineers in the country. The quality of workmanship is still poor comparing the neighboring countries. Moreover, Cambodia lacks lot of local skillful labor and engineers to support on any project; especially they need necessarily the design engineer in large project. Because, by the survey it is found that for all large project in Cambodia such as high-rise building, industrial building, they had to import the foreign engineer from oversea to design and control that project instead.

The large amount of unskillful labor and low productivity of local labors and engineers causes the contractors a concern of cost and quality of their project, especially the project delay to the owner. It is hard to find the skill and experienced labors and engineers in Cambodia if they want to start a new construction project.

Every year, the academic institution has produced fewer amounts of fresh graduate engineers to involve in the construction project at all area of the country. Moreover, the engineering education system comparing the other developing countries, it is still limited standard. Nowadays, there are only a few universities which are providing the skill in civil engineer and related-skill, and it is not enough to get the enough engineers to support in the real work.

The cause of these problems related to human resources is found from the training. The universities have important role to produce the number and skill of engineers in the country. But by the research it is found that Cambodia has produced less amount of engineer, for example it is estimated the number is around 30-40 civil engineers per year for all universities in Cambodia. Moreover, Cambodia has never had a large project in the country before, and then when it had new project of high-rise building, the local engineers absolutely faced lot of troubles concerning the experience and new technology that they have never seen before.

4.3.1.4 Material/Machinery Resources Problems

- High fluctuation of materials cost
- High cost of machinery
- Shortage of materials in the country
- Inadequate production of raw material in the country

- Shortage of equipment/machinery
- High transportation (logistic) and handling cost
- Low quality of local materials
- Lack of competent suppliers
- Low productivity and efficiency of equipment
- Lack of high-technology mechanical equipment

All of the construction projects in Cambodia have to import the main construction materials such as steel and cement from oversea. But for the cement, there are now few plants which can supply in whole country. The foreign countries that are mainly import the construction materials into Cambodia, first is Thailand, and the next is Vietnam and China. Due to the import of materials and machinery from oversea, so the cost of material such as steel, cement and the construction machinery are very high, especially there is price inflation in recent years. These problems seriously affected the construction project in Cambodia. Furthermore, some contractors in Cambodia had to decide to use the low-technology mechanical equipment for building construction project. Comparing to other developing countries, construction technology in Cambodia could be considered as low-level. Mostly, they have used labor-intensive due to high cost of machinery and its operation and maintenance in the country.

Shortage of material resources is also found to be a major factor contributing to the delay. Most of contractors in Cambodia have to import the construction material and machinery from oversea. That is why the price of imported material is high for them. Moreover, the material shortage is the main problem in their construction project due to there is not much competent suppliers in the country.

Additionally, Cambodia is a country where they just ended the civil war in last two decades. Cambodia has no plant to produce the construction steel, just now they just have cement plants and just operate since 2007. That is why the need of material imported from other countries is still strong and it could cause the shortage of materials in the country too.

4.3.1.5 Financial Problems

- Mode of financing and payment for complete work
- High interest rate charged by banks and loans
- Lack of capital and funding

By the survey in Cambodia, the contractors have mostly met the financial difficulties in their organization and also the payment from owners to complete work in time. Also, the high interest rate charged by banks and loans is one of contractor concern for thinking in Cambodia.

The most impact of financial problems for contractors in Cambodia is the delay of their construction project and funding shortage to support the whole project. This may affect the salary of labors and office staffs; it could be late payment for them and material suppliers.

4.3.1.6 Coordination and Communication Problems

- Poor communication among parties (with Owners, Consultants, Subcontractor, Material Supplier)
- Foreign language problems among parties
- Bureaucracy of tendering method

Communication between the contractors with the owners and consultants is considered to be the most important factor in the construction project in Cambodia. For the big project, it has to have a strong communication at all level among parties involved in the project. By some interviews in Cambodia, some contractors talked about the foreign language problem using in their construction project, especially the communication with their domestic contractor with foreign consultants or owners, or the foreign contractor with domestic owners. Language is also important to run their project smoothly without any obstacle. The impact of coordination and communication problems is that it could make the local contractors difficult to contact their project partners such as the owners and the consultants. If they have different nationalities, they may meet some problem when they have a meeting or discussion to run their project smoothly.

4.3.1.7 Construction Marketing Problems

- Strong competition in construction market
- Lack of bidding process for construction market
- Domination of construction industry by foreign firms

Concerning the marketing of construction sector in Cambodia, some contractors said that in order to gain any projects, they have to strongly compete with other contractors. Especially, for the small and medium contractors, they are hard to find the project because most of the projects were gained by the big contractors. Moreover, for the domestic contractors, the competition with the foreign contractors is very important in Cambodian construction industry nowadays. Most of large projects are invested by the foreign investors; mostly they have to choose the foreign contractor from their own country to manage their project. Furthermore, the lack of competent subcontractor in the market is also the problem for the contractor in Cambodia. They are hard to find the skillful subcontractors with the high experience.

Strong competition in the construction market in Cambodia could impact the small and medium contractors who want to get the good project. Most of domestic contractors are in small and medium size, so that they have to face the problem of competition and bidding process with the foreign contractors with the high experience. That is said as the domination of construction industry by foreign firms.

The cause of these marketing problems with the strong competition for the domestic contractors is from their low experience. Also, it causes from the lack of bidding process. Generally, most of owners in Cambodia chose the contractor by themselves without making a bid at all. It can be said the kind of narrow market for construction sector in Cambodia.

4.3.2 Contractors' Problems at Project level

The problems occurring for the contractor in Cambodia at project level were collected and classified into 6 different categories. Those categories are owners, consultants, subcontractors, material/machinery resources, human resources and communication.

4.3.2.1 Problems by Owners

- Delay payment by private owners
- Slow decision making
- Excessive change orders by owners during construction
- Unclear responsibility
- Frequency of design changes

By interview with the professional managers from the responding contractors in Cambodia, the most important factor that affects directly the construction project is cause from the owners. Owners have necessary responsibility for the construction project. They are the one who can make decision making related to the project payment, so the problem concerning the payment by owner affected the contractors who are working in Cambodia due to often delay payment by their owners. Moreover, the contractors often met the change order by their owners during the construction that is the problem of design changes.

All of these problems related to the owners have strongly influent on the construction project. It can impact on the contractor financial as well. This will lead to delay of the project that is the one important factor for the construction project.

4.3.2.2 Problems by Consultants

- Inadequate experience of consultant
- Lack of responsibility of consultant
- Slow response
- Conflicts between consultant and contractor' s site engineers

Concerning the consultant problems affecting to the contractor in Cambodia, it is found that most of consultants have low experiences with the lack of responsibility for the construction project. Consultant is one organization who controls the overall technical and project work done by contractors, and then their response is very important for the contractor to continue their project properly. But the consultants often made slow response to the contractors. That is also the problems for contractor. Additionally, it is also found that in most of project in Cambodia, there still have some conflicts between consultant and design engineer.

All of the consultant-related problems had affected the project work done by contractors. If they are low experience, they may not help much in contractors' project, whereas they could make any conflict with their contractors' engineers. All of these have made the construction project delay.

4.3.2.3 Problems by Subcontractors

- Delay in subcontractors' work
- Low responsibility of subcontractors
- Low skill and low productivity of subcontractors

Beside the owners and consultant-related problems, contractor has also faced the problems with subcontractor which they hired to work for subcomponent of the project. By the interview, it is found that some part of delay in construction project is caused from the delay in subcontractors' work. Some subcontractors always make a low responsibility and productivity in their subcontracted work. These can be said they still have less experience concerning the construction project, especially for the large project such as high-rise buildings that never had in Cambodia before. Cambodia just has had the large project with the high-rise buildings since 2006. Then, for some technical technology is never seen in Cambodia, that is hard for some domestic subcontractors who want to work for them.

Like previous described problems of contractors with owner and consultant, the problems with subcontractors could also cause the construction project delay and cost overrun. The less experience and low responsibility with the low productivity of subcontractor skill affect the quality of whole project. That is why it is hard to find the competent subcontractors with the high level of quality in the country.

4.3.2.4 Material Resources Problems

- Often delay material delivery on site
- Inappropriate/misuse of material for project
- Change in material types and specifications during construction
- Late procurement of materials

Every construction projects in Cambodia frequently met the problems concerning the construction materials, such as steel and cement that is the most important material for the building projects. All of these materials have to import from other countries. That is why it can make the delay material delivery on site. But some delay is caused from the logistic problems too, because the transportation sector in Cambodia is still poor. Some project the material use is changed by the owners during construction due to the cost and their demand, also due to the design changes.

The delay material delivery on site leads to the project schedule and planning of contractors in Cambodia. Whereas, the inappropriate or misuse of material by owners or contractors would also affect the quality of the construction project. Furthermore, it is found that the delay material delivery on site is caused from the late procurement of materials by owners.

4.3.2.5 Human Resources Problems

- Inadequate of labors' skill on site
- Less communication in work by labors
- Supervision too late
- Personal conflicts among labors
- High cost of skillful workmanship
- Low productivity/skill of site engineers

Cambodia is a country which still has limited amount of human resources in the country, including the construction technical labors and engineers. By the survey, it is found that there are much inadequate of labor skill on construction site. It is hard to find much skillful labors to support in the construction project. Most of labors are Cambodian people who had been the farmers before they found a construction job instead in the cities. Most of them are unknowledgeable, they have very low education. During the construction it is usually to see the conflicts among labors. Likely, most of Cambodian engineers still have low experience and low productivity of construction work. Construction sector has just boosted in the last decade, so the share of construction knowledge among the high experience and low experience is still limited. Especially, the skill of engineer related to the large project like the high-rise building is very low.

The lack of low skillful labors and low experience of engineers impacted strongly on the process of construction project, because the labor and engineers is the main resources who work and build the whole structure of the project. It may cause the delay of the project and quality management for the contractor. Contractor has to spend more time in training them before putting them on site.

4.3.2.6 Communication Problems

- Lack of comprehensive dispute resolution
- Lack of co-ordination between designer and contractors
- Poor coordination among project participants

Some of contractors have met also the communication problems in Cambodia. Lack of comprehensive dispute resolution and the lack of co-ordination between designer and contractors are found to be the problems for some contractors. They always have poor coordination among the project participants such as owner, consultant, and subcontractors. Poor coordination among project participant may lead the project too low, it is affected to the construction schedule duration. Lack of communication among parties could become an obstacle for their decision and running project smoothly.

4.4 Contractors' Problems in Thailand by previous studies

A research by Tonlo, S. and Leunbootnak, N. (2008) about the factors effecting of construction and construction delay improvement in Thai government project which has survey amount 50 public projects showed about factors and the problems as follows:

Table 4-1 Typical problems of small and medium-sized construction companies

Problem Factors	Problems Details
1. Owners	1.1 Material supply problem 1.2 Project payment problem
2. Contractors	2.1 Problem of financial 2.2 Problem of lack of labors 2.3 Problem of lack of materials

Table 4-1 Typical problems of small and medium-sized construction companies (Continues)

Problem Factors	Problems Details
	2.4 Problem of working stop of labor 2.5 Problem of lack of equipment
3. Financial	3.1 Lack of loan source
4. Project management	4.1 Bankruptcy of small contractors
5. Material	5.1 Problem of lack of material suppliers
6. Social	6.1 Opposition and resistance from people in the project area
7. Government	7.1 Intervening from the local authority 7.2 Intervening from the government

Source: Tonlo, S et al (2008)

Another research of Phannikul, I. and Benjaoran, V. (2008) has focused on the typical problems on the business process of small and medium-sized construction companies. That research investigated the existing business of 5 small and medium-sized construction firms to identify their problems related to the construction work and management.

As a result from his research, it was found 3 main problems that occurred in 5 small and medium-sized construction companies. The 3 problem are described as follows:

1. The capital control and process of the construction project progress
2. The gathering of capital data from construction sites
3. The manufacturing management and concrete supply transporting

A research studied factors affecting of construction contractors in one province of Thailand. Those contractors are working for government and private sectors. The result of this search showed all the factors that were affecting the construction contractor's work. They could be also called the contractors' problems that are able to conclude into Thai contractors' problems.

Table 4-2 Problems encountered in some area of Thailand

Type of problems	Problems Description
Project Finance	<ol style="list-style-type: none"> 1. Using own capital 2. Using joint capital 3. Using investment from finance institute 4. Project owner doesn't pay money or late payment 5. Decreasing the budget 6. Low bid 7. Other expenses
Project Management	<ol style="list-style-type: none"> 8. Work scope and quantities is not clear 9. Owner change the work scope 10. Conflict with consultant or owner 11. Lack of knowledge and experience in management 12. Decision making of risk manager 13. Work allocation has overlap 14. Subcontractor delays the project
Human resources	<ol style="list-style-type: none"> 15. Lack of knowledge and skill of works 16. Lack of labor 17. Lack of equitable wage 18. Lack of work unity 19. Lack of work safety tools 20. Lack of caring from team leader
Material resources	<ol style="list-style-type: none"> 21. Lack of local materials 22. Lot of material portion are discarded 23. Delay of material delivery 24. Material storage is not proper
Technique of construction	<ol style="list-style-type: none"> 25. Model and form is not clear/complete 26. Rush of construction is too much 27. Technician is not expert to work
Equipment and tool	<ol style="list-style-type: none"> 28. There are not own equipments 29. Hiring of equipment 30. Lack of equipment maintenance 31. Using equipment in wrong function 32. Careless in using equipment and tool 33. Always have damage

Source: Phannikul, et al (2008)

4.4.1 Description of Thai Contractors' Problems by each Categories

All of the description of following Thai contractors' problems is the problems that were mostly collected from the questionnaires and interviews in Thailand, and some part also from the literature and previous related studies. There were amount 8 contractors to be conducted with 11 questionnaires providing and 5 contractors to be surveyed with the oral interview (List of contractors, See Appendix-D). Combining all data that we collected, it could be sufficiently to understand about the contractors' problem which occurred in Thailand.

4.4.1.1 Part of Owners

The owner often instructs the work on site directly without concerning the change order procedure which causes the conflict regarding compensation cost arisen from changed work. Some building owners sometimes order the contractor to change their scope of design and work according to their decision or financial situation. Particularly, the owner does not understand the completion of construction work; they still order the contractor to modify some part of work after work completion or contracted schedule. The problem of owner financial is also seen in some construction projects, sometimes the owner lacks of budget to expense for the contractor process, and they might be late in few months. Generally, for private project in Thailand the late payment by the owner has not often occurred. Concerning the decision of owner, it is found that they still have low decision in design selection, material selection decision, it caused the construction schedule of contractor, and it made it shorter and could be late of project completion duration. It may force the contractor to work with the over time in order to complete the project on time. Sometimes, the contractor had to pay fined amount back to the owner for the project delay. That is a problem to concern.

Moreover, the owner sometimes did not have the experience of construction project before. It means that the owner trusted in the document and drawings rather than the reasonable idea of basic engineering. That is why the small conflict could be happened between the owner and contractor during the construction. It is also found

that Thai contractors have a higher risk than foreign contractors, for example Japanese contractors.

For the public project, the problems from the owner have been crucially encountered, mostly the government and public department. The late payment in public project is the most concern for the contractor. The contractors often encountered the problems caused from the owner in public projects rather than private projects.

4.4.1.2 Part of Consultants

The lack of engineering skill of the consultant causes the delay during the construction. Moreover, the proposed working methods which make benefits to the organization are frequently rejected as consultant understand the method. Therefore they rejected the contractor's proposals. Some consultant has the young engineers which they do not have experience or have low experience. So, they have to get more confidence for their opinion in deciding some kind of work. The trouble and conflict may occur during that time and the work may be slowing down than usual. Consequently, the above problem would make the project delay and increase the expenditure cost.

4.4.1.3 Part of Subcontractors

Without the comprehensive subcontract, the subcontractors cannot be controlled effectively which causes the delay work and low quality of work. That is why, we need to have more competent subcontractors in order to make the suitable cost and work quality. Sometimes, the labor of subcontractors is not enough to provide on construction site. Their amount is not so clear, the problem may encounter during the holiday and festival. The labors of subcontractors may return their hometowns to involve planting the farm during the rainy season or else. By some questionnaire and interview, some contractors in Thailand still have limit of competent subcontractors to support of the company activities, especially in term of quality, safety and environment.

4.4.1.4 Part of Material Resources

Regarding to the size of the company, the material procurement process sometimes takes quite a long period of time that certainly affect the construction period. The material price is recently increasing without reasonable fundamental, such as cement, reinforcement and oil price. It causes to difficult to control the budget and decreasing in gained profit. Some construction material part has been ordered to stock and reserve in advance and it could have some quality problem. Particularly, in term of construction material, it is the responsibility of owner to purchase and deliver to the site. So the problem of material delivery on site could be occurred, it is the cause to delay the project duration, and the project would not finish by the duration limitation of the contract. Sometimes, the designer provides the material performance supply not suitable or better to the construction work. In case of the contractor has requested for material change, they has not agreed and suggest the contractor to follow the design of their material providing. When the problem occurs due to material quality and performance, it becomes the problem which the contractor has to be responsible in that case.

4.4.1.5 Part of Human Resources

The conflict between young engineer and senior foreman sometimes occurred as the foreman did not pay respect to the young engineer whereas the engineer feels that the foreman work did not follow the engineering principles. There were a lot of labor workmanship come from the agriculture sector, it mostly caused the quality of workmanship and professional experience, also they work in the construction project infrequently, and especially in the rainy season they had to go back their homeland to help their family in the farming task. That is why the problem occurred according to the lack of quality and variation of labor on site. Most of low skill of manpower is seen at the site. The communication among the labor is still limit due to the time constraint and different language, some of them came from neighboring poorer country such as Cambodia, Laos and Burma. That is why they cannot speak Thai well, they just do their work without discuss with their Thai supervisor. The lack of communication among labors during the work process causes low productivity and less experience of labor. Safety of labor on construction site is a little bit concern.

Because every contractors in Thailand understand and control well about the work safety during the construction, for example the high-rise building project.

4.4.1.6 Part of Communication

The communication between designer, project manager and contractor sometimes has problem about the shop drawing. It is needed to define whether this shop drawing would be controlled by the project manager or designer. By the questionnaire and interview, they showed that there were enough communication during the construction project, they have some kind of communication procedure, and by using new IT technology they could practice and coordinate each other well. Anyway, they still have some problem in language communication such as English and Japanese with their foreign participants that are mostly from Japan. The difficulty in language may cause the meeting and discussion not smoothly and sometimes cannot solve their dispute well.

4.4.1.7 Part of Government

The control of cost data in Thailand seems be good and enough for all contactors, including the foreign contractors. This is the duty of government to control and help the construction material quantities and cost are reliable for contractors working in Thailand. Due to the political concern, recently there is often change of government, so the policy to the construction sector changes too. Consequently, it causes some projects shall be postponed. The economic situation in the country is the responsibility of government, so the economic is not stable and there would have price inflation and fluctuation in the country, it causes high price of main material, equipment and other expenditures could be support to the project. If the contractor or owner has their financial and capital limit, the abandonment, postponement or delay will trouble construction of contractor or owner. Furthermore, the regulation in the country is also little bit affect to the contractor such as the disagreement from local official, they may stop some parts of work due to environmental concern or dispute from people community surrounding the project.

4.4.1.8 Part of Financial and Construction Marketing

The financial problem has sometimes occurred in some contractors only, and the way to get the new project is more difficult recently due to increasing and domination of foreign construction companies into the country. It is hard for the small and medium contractor to bid for the large and medium projects, because they will have the strong competition with the reliable and experience big contractor in the country too.

4.5 Summary

The first part of this chapter described all of contractors' problems occurring in Cambodia that had been collected by the interview survey which conducted with the professional project managers in some domestic and foreign construction contractors. All was classified into 2 different level, industry level and project level. At the industry level there were totally 7 categories different, whereas at the project level there were totally 6 categories different. With these two levels, it is found that 55 sub-problems are collected with 30 at industry level and 25 at project level. All of these problems would be used in comparison with Thailand. The second part of chapter showed about the contractors' problems that are needed to compare with Cambodia contractors.