A STUDY ON IMPROVEMENT PLAN OF OVERSEAS BUSINESS THROUGH PROCESS AND ISSUE ANALYSIS

By

LEE, Jeonghwan

CAPSTONE PROJECT

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

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ABSTRACT

A Study on Improvement Plan of Overseas Business through Process and Issue Analysis

- Focus on K-water -

By

Jeong Hwan Lee

This research paper aims to show improvement points of K-water overseas business. In other words, this study focused on suggesting ways to improve overseas business by reviewing the risk allocation and major document issues in K-water overseas project.

This study examined the structure and major risks of overseas IPP business, as well as key issues of major contracts. IPP projects require extensive procedures and review processes from development to operation. In order to understand this, it is necessary to concretely summarize IPP business and it is necessary to organize the whole framework. In addition, based on a case study of K-water, I propose an optimized improvement plan for K-water overseas business. Therefore, this study tried to present a more realistic research plan through academic theory and practical case presentation..

Eventually, the most important thing in this study is to review the overseas IPP projects promoted by K-water, and to summarize the overseas IPP projects of K-water, which is a public corporation, based on the results. For this purpose, K-water's overseas business strategy was analyzed and SWOT analysis of K-water overseas business was conducted.

Finally, completing an overseas project is a long-term process, complex contract document, long-term negotiation and collaboration of project stakeholders. The purpose of this study was not only to suggest ways to improve K-water overseas business but also to give help to the people in charge of K-water overseas business. In addition, I want to help understand the promotion of the overseas business of the public corporation.

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1. Introduction

Global climate change is threatening the survival of humankind, and these climate changes are caused by human and greenhouse gas emissions particularly carbon dioxide emissions. Thus, the world is reducing the use of fossil fuel energy, a major cause of carbon dioxide emissions by investing heavily in the development of alternative energy such as hydroelectric power. In addition, climate change is deepening global water shortages. In particular, the importance of infrastructure investments in the water sector in developing countries, where water shortages are serious, is increasing (World Bank, 2012).

In order to improve water and infrastructure availability in developing countries, K-water has been providing water master plan and consulting services for developing countries for many years in cooperation with Korea International Cooperation Agency (KOICA), that is, Korea's grant aid organization. In addition, K-water has carried out 88 Official Development Assistance (ODA) projects, which are free aid projects, since the investigation of China's the Fenhe River watershed in 1994. Further, K-water has been carrying out four overseas investment projects, starting with the Patrind Hydropower Project in Pakistan since 2009.

As a result, K-water has played an increasing role in overseas market expansion based on Accumulated water technology. K-water has been pursuing overseas business in various fields such as hydroelectric power generation, water supply and sewerage, and seawater desalination in line with global alternative energy development.

Even though K-water has undertaken many overseas projects, K-water still faces various difficulties in its overseas investment business. The reason is as follows. First, there was a lack of understanding and knowledge of overseas investment projects due to the promotion of low-risk projects such as ODA. Second, it lacked international contracting capabilities such as concession contracts, power purchase contracts, Engineering Procurement and Construction (EPC) contracts, and project finance contracts, which are essential for overseas business. Third, it lacked international negotiation and dispute resolution experience. Therefore, it is important to analyze the problems of K-water overseas business and to

prepare improvement plans. Recently the research of public company overseas business has become an important issue for the government that seeks to create national wealth and increase employment.

Fortunately, important research has been conducted recently on overseas projects. Jung (2015) presented the contract structure, major risks, major contractual issues and dispute resolution of Independent power projects (IPP). Son (2016) conducted a study on the operation and maintenance contracts of independent power projects. Kim (2015) proposed risk analysis and risk allocation for overseas project finance. Lim (2013) provided analysis and interpretation of international financial contract provisions. These studies have helped to improve understanding of overseas IPP business, but focused on overseas IPP project procedure and major issues in stages, and did not analyze from the viewpoint of public corporations or actual cases of public corporations.

Social Overhead Capital (SOC) public corporations has been responsible for all domestic SOC operations for several decades in Korea. As a result, they have accumulated world-class operational performance and know-how. In Korea, however, demand for new facility SOC has reached the limit due to many SOC investments in the past decades. Therefore, domestic SOC public corporations are promoting overseas business to maximize the synergistic growth effect by entering into the overseas market together with private companies, and to improve the international competitiveness of company and stable profit generation in the future. The government is actively promoting the advancement of overseas businesses with public corporations and domestic companies in order to create national wealth and expand employment. The private companies that can enter the overseas business together with the public corporations are domestic construction companies, domestic general trading companies, and financial sector. Construction companies can increase the effectiveness of joint venture with public corporations and job creation by constructing facilities as well as capital investment. The financial sector, due to its abundant liquidity and low interest rates, they are highly likely to invest in profitable overseas infrastructure facilities. Public corporations can make stable profits through long-term operation of SOC.

However, there are many obstacles to the entry of PPP overseas businesses as public corporation. If the public corporation's overseas business fails to attain publicity and

profitability, there will be many difficulties in promoting overseas business.

In terms of publicity, it is very difficult for public corporations to receive financial support from the government. If they do not involve Korean construction companies or engineering companies in their projects. In addition, government regulations on foreign investment are also very strict. When a public corporation invests abroad, it is required to consult with the Ministry of Strategy and Finance as well as the head of the competent authority in advance. If the public corporation invests more than 50 billion KRW, it should go through the preliminary feasibility examination of the Ministry of Strategy and Finance.

In terms of profitability, if the high profitability is not guaranteed due to the risk of overseas business, the project may be stopped from preliminary feasibility which is the initial investment decision stage. Also, in the case of public corporations, investment performance should be reviewed according to the regime's intentions, and management performance should be reported in annual at parliamentary inspection of the administration. so, public corporations overseas businesses have a fatal weakness in that they are more engaged in short-term earnings than in the mid-long-term.

This paper summarizes the procedures and major issues of overseas IPP projects that have already been studied and analyze the overseas business of K-water, Korea's leading water resource public corporation. It will increase understanding about IPP business. In addition, I will draw out directions for improving K-water's overseas business.

1stage	Conceptual Theorem	Summarize concepts, types, procedures and risks of IPP projects
		Main contract issues with major stakeholders of IPP business
2stage	Case study	Analyze K-water's overseas business status, risk management, procedures, success factors
3stage	Derive	Analyze K-water's overseas business problems

	application method	Derives improvement for K-water overseas business

(Table 1: Procedure of the study)

This paper will be useful in cases where overseas business policy makers as well as K-water policy makers must decide on their overseas business policies. It will also be useful for general overseas business executives to understand overseas business.

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2. Literature Review

In this section I will provide an account of the development of scholarship in the field of overseas business. Since overseas projects are conducted in a different environment from domestic projects, it is exposed to more risks than domestic investments. And also a very dangerous business when considering funding and long-term projects. Since the first oil crisis in 1973, the nationalization of natural resources has been extensive and the risks faced by foreign invested companies have increased, such as the frequent occurrence of nationalization of foreign-invested companies in third countries, various scholars have begun extensive research to manage risk.

Overseas projects have two main areas of academic disputes. First, business is a risk issue. Risks to the business represent risks arising from the business such as political risk, completion risk, environmental risk, operational management risk, bankruptcy risk, inflation risk and profitability risk. Second, it is a risk allocation problem of the project participants. It is a question of how business participants are responsible for business risks in a fair and balanced manner. The issue of risk allocation is the most controversial and has been actively discussed by many scholars. (Lim, 2013, Jung, 2015, Kim, 2015, Son, 2016, Jun, 2016, Oh, 2017);

Research on existing overseas projects has been actively conducted mainly in overseas independent power projects (IPP). Jung Hong- shik (2015) proposes the contract structure in the IPP business and the major risks of each contract and proposes dispute settlement methods based on the IPP business structure and core issues of each contract. Son song-yee

(2016) looked at various major structures and advantages and disadvantages of the IPP project management contract, and discussed issues to consider in solving power plant operation and management problems. She also proposed ways to appropriately allocate risk to mitigate operating risks. Kim Chae-ho (2015) presented a major risk analysis and mitigation plan to secure financial support for overseas project financing (PF). Jun ho-jeong (2017) dealt with legal issues related to acquiring stakes in foreign investment projects. The researchers suggested that if there were disputes about actual content and business, various problems would arise and corresponding solutions would be established. I have a similar view on the opinions of the researchers and hope that the theoretical content will be applied to actual research so that a lot of research and ability development can be actively pursued. The study of major problems and risk allocations based on the general foreign business process presented in the previous paper provides useful information for conducting overseas business.

However, since it is impossible to analyze the actual cases of overseas IPP projects, there are limitations in finding out the problems of overseas projects by applying K-water's overseas cases. In addition, it is appropriate to restrict the research scope to overseas IPP projects related to K-water because the scope of research is too wide to deal with all procedures and risk allocation of overseas projects.

The purpose of this study is not to focus on the legality or fairness of risk mitigation measures or risk allocation measures discussed in previous studies. Instead, I would like to focus on what is the optimal risk allocation for K-water overseas business and how to improve overseas business. Therefore, first of all, by reviewing existing overseas business researches, I will improve the understanding of overseas business and review the contractual relationship based on case studies of K-water, and propose a solution optimized for K-water. This type of research is believed to contribute to empirical research and development through the application of theoretical content and case studies. This study will contribute to the academic research and development of empirical research by applying the actual content of the theoretical content.

To understand this paper, it is necessary to define terminology for the IPP business. The IPP

project could be defined as the main business unit of public-private partnership (PPP). The term "PPP" was first used in the United States in the context of public funding for the education program, and it referred to the financing of procuring electricity and utilities in the 1950s. In the 1960s. It is said that the term was used to refer to a public-private joint venture for urban regeneration.

According to the PPP Reference Guide, revised by the World Bank in 2017, PPP is a "long-term contract between a private investor and a competent authority to provide public goods or services, The principal risk and operational liability, and accordingly the payment of the consideration is linked to the performance of the private investor ". The OECD defines PPP as "a cooperative network and a cooperative network of specific development cooperation issues between the public sector and the corresponding private sector, including donor governments, donor aid agencies or multilateral institutions". Therefore, PPP means that by establishing joint partnership between public agencies and private businesses, the government can raise the advantages of funding for social development at the public interest level and that private businesses can utilize the advantages of commercial interests and crisis management capabilities to the fullest extent.

The sectors of overseas PPP projects include transportation (road, bridge, tunnel, rail and airport), Power generation, water and sewerage, urban development, prisons, hospitals and schools. Statistics indicate that infrastructure investment of $3.3 trillion annually (approximately 3,400 trillion KRW) and total of $49 trillion over the next 15 years due to a surge in global infrastructure demand. This amount is so huge that it is difficult to estimate the magnitude of it. Among them, transportation (road, rail, port, and airport) and power infrastructure investment are the most needed, and the required investment in both areas is $18.7 trillion and $14.7 trillion respectively. Therefore, the importance of the IPP as a major business sector of PPP is immense. In addition, the power generation sector is most optimized by nature to attract private investment through PPP structure and project finance, and is relatively more stable than other areas. Therefore, the overseas PPP of Korean companies have been successful so far in the field of Power generation business.

In this paper, firstly, IPP project is understood as a main part of PPP, and the concept of PPP

project is summarized. Based on this, I will summarize the theoretical concepts, types, procedures and issues of the existing IPP business and analyze the cases of overseas IPP projects of K-water to suggest improvement points of K-water's overseas IPP business. I will deal with the concept, type and procedure of IPP (Chapter 3), the main risks of IPP business (chapter 4), major contractual issues with IPP business (Chapter 5), K-water's overseas projects (Chapter 6), evaluates the overseas business of K-water, suggests improvement of K-water overseas business (Chapter 7).

3. Concept, type and procedure of IPP

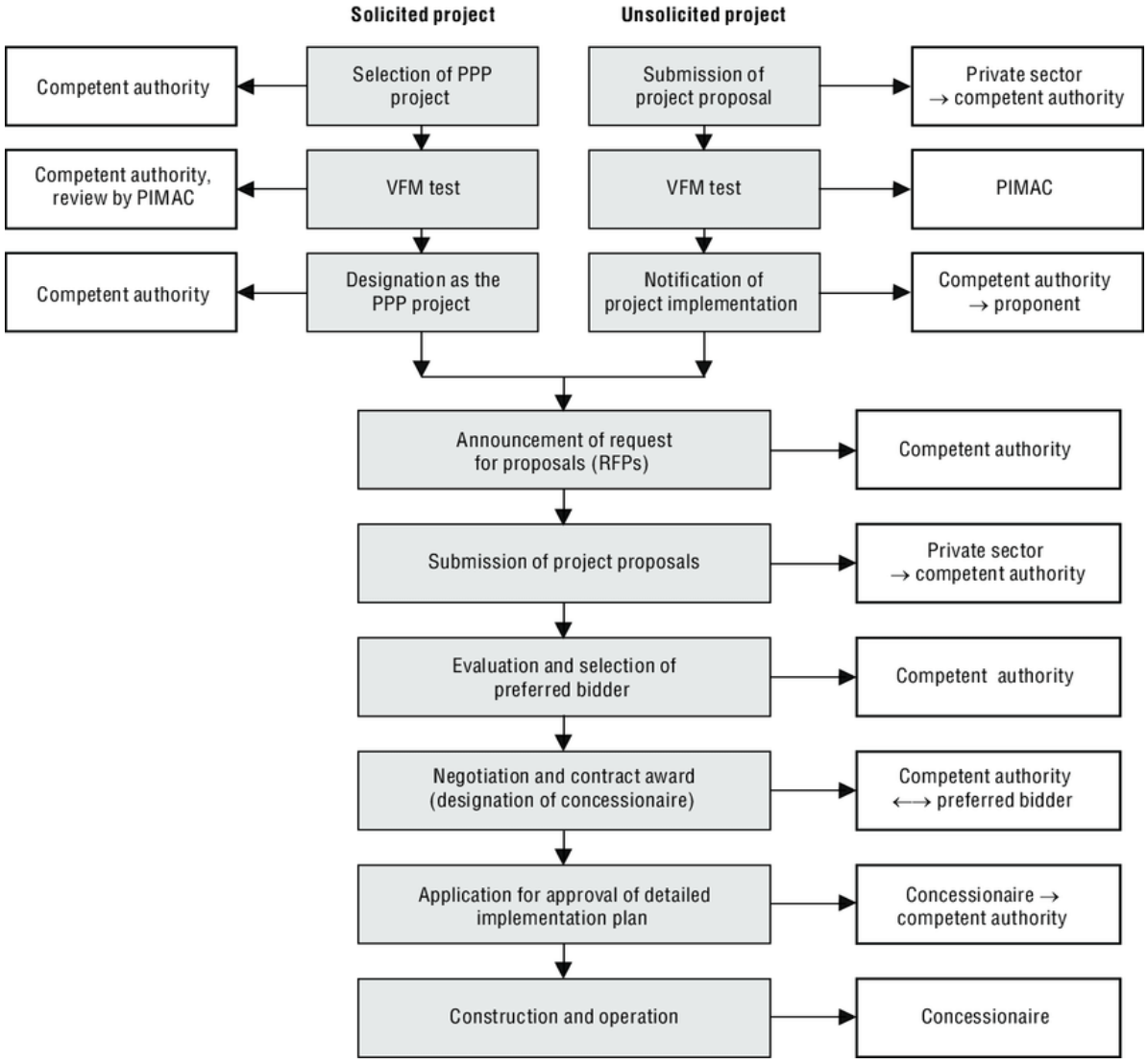
3.1 Concepts and Types of IPP business

IPP is as a type of public-private partnership (PPP), a project in which an independent power producer enters into a concession agreement with a host country for the production and supply of electricity in developing countries, thereby investing in the construction and operation of power generation facilities. In other words, it is a project that the private sector takes a project to build and operate a power plant on behalf of the existing power company, invests the cost, constructs the power plant, and then sells the generated power to recover the investment and gain profits. IPP business methods are various such as BOT (Built-Operate-Transfer), BTO (Built-Transfer-Operate), BOO (Built-Own-Operate), BLT (Built-Lease-Transfer), BTL (Built-Transfer-Lease). But most IPP business methods are BOT and BOO.

The BOT is the concept of transferring power plants free of charge to the buyer of electricity or the host country of investment with the termination of contract. On the other hand, BOO is a concept that the power generation company continues to own the power plant even if the contract period expires. Asian countries have many BOT, but the Middle East is mostly BOO. In the BOO business, after the term of the contract, the options that the power generation company can exercise are as follows. In consultation with power purchasers, it is a plan to negotiate an extension of contract period for electricity purchasing contracts, to sell power generated by continuous operation of power plants to a free merchant market, or to dismantle power plants and dispose of usable equipment.

3.2 Procedures for IPP business.

The Power Bureau of the host country take into consideration the overall power supply plan in accordance with the economic growth of the country concerned, the bidding system is adopted by the relevant private investment laws and regulations that regulate PPP and IPP. The IPP business can be classified into two types according to the type of promotion: solicited project and unsolicited project.



(Figure 1: Procedures according to IPP business type)

(1) Bidding-type project (solicited project)

If business feasibility is secured. The contracting agency in the host country will complete a

comprehensive feasibility study and prepare a very detailed request for proposal (RFP). After that, it will be provided to selected power generation companies through pre-qualification. Often, the competent authorities prefer to proceed in a bid-like manner, as it can induce competition among the bidder to secure lower electricity rates and ensure transparency in the transaction process.

Request for proposal (RFP) shall include (i) the detailed requirements for the bidder as well as the various general requirements to be met in relation to the bid, (ii) the technical requirements that the bidder must meet at least, (iii) the various forms to be filled in and submitted at the time of the bid, (iv) the draft General Power Purchase Agreement, the main terms and conditions of the EPC contract and key contractual obligations that must be entered into the O&M contract and the coal supply(in case of thermal power generation) are provided. The Competent Authority puts a great deal of effort into writing a reliable and marketable bid proposal through cooperation with legal, technical, environmental and financial advisors. Based on the information contained in the request for proposal, the tenderers will receive advice from experts when necessary and prepare a business proposal. The power buyer selects the preferred bidder based on the internal evaluation.

Preferential bidder negotiates with the competent authority on the conclusion of the concession agreement, and the negotiator becomes the concessionaire if it leads to conclusion of the Concession Agreement. Afterwards, the successful bidder carries out financial negotiations in order to raise project finance and obtains all licenses and permits such as environmental impact assessment (EIA). The most important element of the preferential bidder selection criteria is the competitiveness of the leveled electricity costs (LEC) proposed by the bidder. In other words, the bidder must make the lowest power tariff within the range of reasonable returns from the developer's perspective. The representative region adopting this bidding method is the Middle East, and seems to be adopted by Central and South America, some Southeast Asian countries(Indonesia) and some African countries (South Africa, Botswana, etc.). In particular, power purchase contracts for projects in the Middle East are considered to be the world standard format.

(2) Non-bidding type project (unsolicited project)

In the case of a business proposal type or a non-bid type business, it is used in a country where a free merchant market has been established, or in a case where the investor who tries to participate in the bidding is very narrow because the national credit rating does not meet the investment grade. In this type of business promotion, it takes considerable time in addition to the human resources required for development, such that the investor is fully responsible for the site creation, the migration of the resident residing on the site, and the procurement of the fuel itself. It is also a great burden to find out and persuade all relevant government agencies such as the Ministry of Finance, the Ministry of Environment, the Ministry of Energy and the Ministry of Justice.

In other words, the development risk or duration is much bigger and longer than the bidding type, so the development cost can also be 2~10 times higher than the bidding type. This behavior is mainly adopted in North America, South America, Europe, parts of Africa and Asian countries such as Vietnam and Myanmar.

On the other hand, there is a view that these proposal-type or non-bidding-type schemes may be used to respond very quickly in countries where electricity supply and demand are in a state of emergency or inconsistencies in large-scale electricity supply and demand.

Classification	solicited project	unsolicited project
Business selection	Business discovery	Business discovery
	Basic research on business feasibility	Basic research on business feasibility
	Business Selection (Business Selection Committee)	Business Selection (Business Selection Committee)
Business development	Business execution general policy	Business execution general policy
	Preliminary investment review	Preliminary investment review
	Signed MOU / JDA	Secure business license
	PQ submission	Selection of advisors
	Selection of advisors	Business feasibility study
		write Business proposal

Decision Making	Investment Review / Risk Management Committee	Investment Review / Risk Management Committee
	Investment and Funding Committee	Investment and Funding Committee
	Management strategy meeting	Management strategy meeting
	Board of Directors	Board of Directors
	Submit bid	Submit proposal
Contracts and Financing	Preferred bidder selection / negotiation	Business approval
	Established a local corporation	Established a local corporation
	sing the Contracts	sing the Contracts
	Financing	Financing
Business execution	Construction / Facility Operations	Construction / Facility Operations
Business management	Business Management Committee	Business Management Committee

(Table2: Procedures according to K-water IPP business type)

4. Risk of IPP business

The risks of the IPP project can be roughly divided into project risk and country risk. Business risks are the risks inherent in the business itself, including the sponsor risks, the completion risks, the off-taker risks, the financing risks, the raw materials supply risks, and the operation & maintenance risks. Country risks arise because countries have different political, economic, and social structures and circumstances change. Country risks include political risks, force majeure risks, legal risks, environmental risks, exchange risks. And legal change risks.

4.1 Project risk

(1) Sponsor risk and mitigation measures

If the sponsor is unable to contribute capital at the time of funding, or if the operating capital

is insufficient during the project operation period, the sponsor shall bear the obligation to support it, which may hinder the normal operation of the project company. Since the sponsor is the actual entity that carries out the business, technical and financial capabilities are required through many business development experiences. There is a plan to increase the share of investment in order to cover the risk of the sponsor or to guarantee the financial support of the sponsor by third parties such as financial institutions. In particular, in the case of a joint venture, the credit risk of the counterparty should be properly assessed and countered.

(2) Completion risk and mitigation measures

As the power plant is completed, the project company can generate profit through commercial operation of the power plant, the lender can receive the principal and interest repayment, and the operation manager can generate sales by operating the power plant. Completion is the most basic and preliminary matter. Project completion risks include incomplete completion, completion delay, performance degradation, and cost-over-run. Failure to complete will result in construction period delays or business renunciation. Delays in completion can lead to increased financial costs, delay in revenue from project operations, or loss of revenue. All EPC contracts require contractors to meet minimum performance standards. If the power plant does not meet the target performance, the project company's sales will continue to decline. The decrease in sales does not mean that the amount of the principal paid to the lender is reduced, nor does it reduce the operating cost of the plant. Eventually, the profits to return to sponsors may be reduced or not at all. In the case of infrastructure projects, the construction period is usually longer than 2 years, and the difficulty of the construction is often high. Therefore, the cost-over-run is always incurred, In order to prevent this in advance, the EPC should be concluded in the form of Fixed-Price Lump Sum Turn Key, and a professional and technical advisory agency should be hired to thoroughly manage the construction. a reliable construction company is selected and the construction company pays the risk of completion.

(3) Off-taker risk and mitigation measures

The power buyer must be equipped with the transmission network facilities for the stable transmission of the electricity produced and supplied by the project company on time. Until

the grid is connected, EPC contracts and PPA cannot be completed and the commercial operation date of the power plant is delayed. Therefore, the PPA allocates the risk of delay or non-compliance of these obligations. To cover these risks, it is common in PPA to allow the power buyer to compensate the project company for the cost of delaying the transmission network facility.

(4) Financial risk and mitigation measures

The financial institution determines whether to provide financing after carefully examining the creditworthiness of the owner or beneficiary as well as the feasibility of the project concerned. Finally, financing plays a key role in completing projects in overseas infrastructure projects. In the case of overseas business, compared with the domestic business, hard currency is involved and the financing is constrained. For this reason, projects should be promoted from the beginning through Export Credit Agencies (ECA) and Multilateral development bank (MDB) agencies. Participation of domestic ECA institutions (KEXIM, K-SURE) is very important. Since these institutions have their own guidelines for the countries they enter, it is necessary to check beforehand the financial possibility of domestic ECA for the PPP projects of the countries concerned. If the project needs to be carried out in the country, the International Finance Corporation (IFC) under the World Bank and the Asian Development Bank (ADB) should be involved in the project.

(5) Fuel-supply risk and mitigation measures

Once the project is completed, stable supply of raw materials and product sales should be secured. Even if you have a production facility, the operation of the project becomes virtually impossible without the supply of raw materials. Risks of raw material procurement are not limited to stable supply of raw materials but also ensuring stable supply prices of raw materials. If raw material prices surge, even if raw materials are supplied, it will not be possible to generate profits by operating. Also, stable sales of products should be secured. In the electric power industry, stable and long-term fuel supply is very important. Therefore, a long term Fuel Supply Agreement (FSA) must be concluded. In order to reduce the risk of cash flow fluctuation due to the fluctuation of the fuel price, PPA can avoid the risk of fuel price fluctuation by linking the purchase price of electricity with the fuel price.

(6) Market risk and mitigation measures

Market risk is whether the electricity generated from the power plant is sold or whether it will generate revenue in a sustainable and predictable way. In most developing countries, the electricity market is managed by the state, so the parties to buy electricity are the only ones. In order to generate sustainable and stable revenue, it is necessary to take a "take-or-pay" approach when buying a PPA with a power purchaser, for instance by taking the supplied power or by paying the power charge can be reduced.

(7) Operation risk and mitigation measures

Once a successful overseas construction project is completed, it should be operated to generate revenue. However, new projects may fail due to lack of experience and skills. In particular, in the case of a project under project finance, the owner of the facility is a project company, which is a new company. Therefore, it is important to operate by core personnel of companies with experience and credit and to make a reasonable decision - making system.

4.2 Country risk

(1) Political risks and mitigation measures

The impact of the government's policy or system on the project could be nationalization, confiscation and remittance restrictions. These risks can be avoided through the acquisition of the Political Risk Insurance from the ECA. In recent years, insurance coverage has been extended to cover commercial risks, such as contracts executed by government agencies or PPA, such as the default risk of contractual defaults. These insurances are handled not only by traditional ECA. But also by the Multilateral Investment Guarantee Agency (MIGA), a global insurer under the World Bank, and global insurance brokers Marsh and AON. It is necessary to confirm precisely whether insurance can be provided in the beginning of the project.

(2) Force Majeure Risk and Mitigation measures

Disabling the implementation of contractual obligations due to physical or legal barriers

outside the control of the contracting party may result in adverse political risks such as typhoons, earthquakes, volcanic eruptions, floods, and government embargo, And the risk of contract failure due to payment suspension, war, and strike. These risks are covered by natural disasters such as floods, but it is difficult to cover humanitarian disasters such as strikes and government actions. Therefore, the presence of force majeure risk regulation, scope, and countermeasures for the risk of force majeure should be examined.

(3) Legal risk and mitigation measures

Under the Companies Act, investors should look to whether the project company allows or restricts dividends to shareholders. The contents of the shareholders contract, such as stock transfer or stock preference claim, should be verified to be valid under the laws of the host country. If the legislation of the host country does not adequately address these basic corporate legal issues, a number of measures are needed. When sponsors promote the IPP project, they will import various necessary equipment and equipment into the investment host country. At this time, the customs law should check whether there is any problem in the import of equipment. It is also necessary to examine whether there are other constraints on the immigration law so that the workforce of the sponsors can freely stay on the spot.

(4) Environmental risk and mitigation measures

Especially the investment development type business, compliance with the EIA (Environmental Impact Assessment) is a key factor in financing. ECA and MDB are required to comply with the OECD Environmental Guidelines and the Equator Principle in order to promote strong environmental protection policies equivalent to those of developed countries. Passing environmental impact assessments to the OECD Guidelines requires the assistance of experienced consultants.

(5) Currency risk and mitigation measures

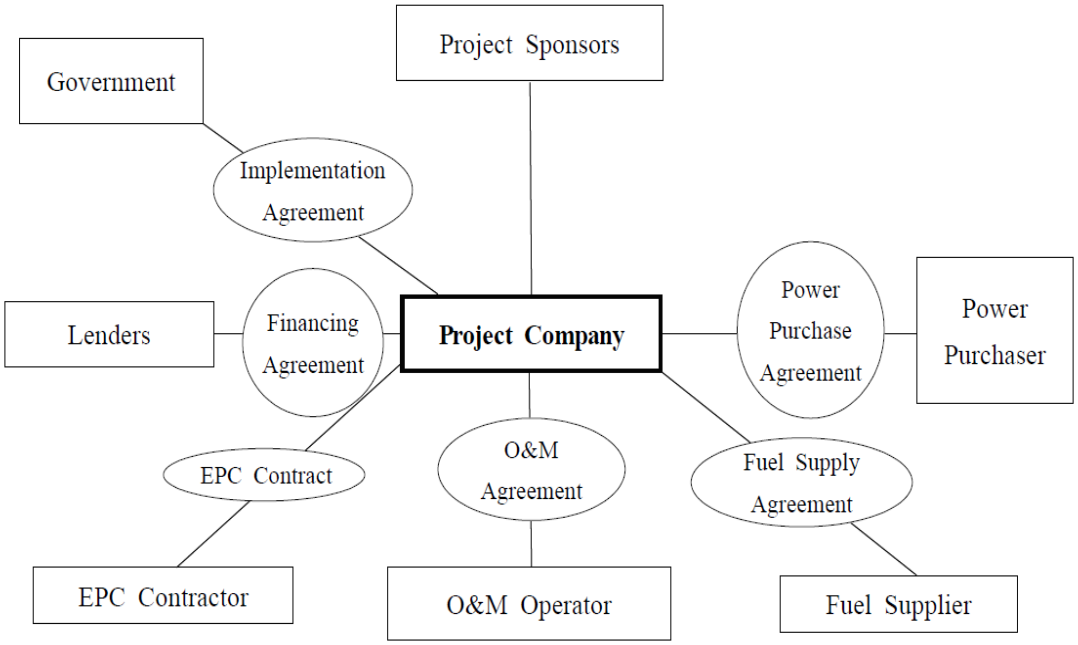
Currency risk refers to the risk that contract value and the actual value of the payment of the settlement price fluctuate due to exchange rate fluctuations, resulting in loss. Contracts for overseas construction projects are mainly settled in the US dollar, but there are also Korean

won or third country currencies for the cost of carrying out overseas construction projects. Therefore, even if the contract price is paid normally, the loss may be incurred when the KRW/USD rate declines after the contract is concluded. If such a situation arises, the guarantee agreement provided by the government under the Concession Agreement may cover the currency risk to some extent. In the case of overseas finance, hard currency such as USD or Euro is generally used as the reference currency for funding. If the base currency of sales is not such a consolidation, there may be a risk that the repayment of the principal will not be possible due to the exchange rate change in the process of repayment of the principal by the relevant sales, In general, hedging risks through swap transactions. In the absence of a long-term swap market, the exchange rate risk should be directed towards the borrowing country, and it is necessary to induce the currency of the sales to be the hard currency standard.

(7) Change in law risk and mitigation measures

PPA is usually long-term contracts for 20 to 30 years. At the conclusion of the PPA agreement, there is a risk that it will be difficult to predict how the market will change over the long term, although it is agreed to be consistent with the market situation of the power industry. Of course, the PPA includes a clause to cover the loss of a project company when there is a "change in law" or "change in tax" during the contract period. In other words, the risk should be avoided by providing economic compensation to the project company and the lender as a result of legal changes or tax fluctuations that adversely affect the project company.

5. IPP business major stakeholders and Major contract issues



<Figure 2: Major contracts with stakeholders in IPP business>

There are stakeholders with different purposes in the overseas IPP business. The government of the host country or a public corporation responsible for the supply and transmission of electric power orders IPP business, and the private operators acquire the development business right from the government or the public corporation through bidding or private contract. Private operators who have acquired the business license have established a project company in the form of a special purpose company to carry out the project, and the project company becomes the contracting entity for the IPP business, procures financial resources from the financial institution through project finance, Private operators conclude power purchase contracts, power plant construction and operation contracts, and fuel supply contracts, which are key to generating sales. As a result, the parties to the IPP project can basically be classified into three categories: First, public sector is that the host government provides the concession for the privately owned power generation business, guarantees the profit of the investment, and the power buyer who is a public corporation purchasing and transmitting power. Second, lenders provides project financing for construction and operation of power plants. Third, the private sector is project owner, construction contractor, operation manager, fuel supplier

5.1 Major Contract with the Project Sponsors

□ Project sponsor (Sponsor)

The project sponsor is the parent company of the project company, who acquires the business development right from the government of the investment host country, constructs and operates the power plant through the project company, and sells the electric power and obtains profit (dividend) from it. The project sponsors can acquire the development business right from the investment host country government through bidding, or it can transfer the business right from the company that acquired the development business right locally, with approval of the government of the country concerned.

□ Joint development agreement (JDA)

The project sponsors conclude a joint development agreement between the project sponsors at the initial stage in order to win the development business right. Under the joint development contract, the parties agree that the cost sharing based on the feasibility study necessary to acquire the business right, the allocation of each role in the project, and the cost paid by each part will be converted into capital at the time of the establishment of the project company. Other key terms and conditions are as follows.

(a) During the development period, the procedures for recognition of the costs incurred by each part in the business development and the procedures for recognition of the pre-development costs incurred before the development period are specified.

(b) Establish a project development committee and establish rules as the board of directors decides. If there is a deadlock, try to solve this problem for a certain period of time, but if it does not resolve, deadline for stake transfer will be finalized.

(c) Identify matters requiring prior approval of the Project Development Board in the process of making efforts to obtain business rights.

(d) Have one project manager handle routine tasks.

(e) Provide each part contribution payment and accounting items according to the project development budget.

(f) The joint development contract is valid until the weekly contract is concluded or until the early termination of the contract.

□ Shareholder's agreement

As project sponsors establish a project company, they sign a shareholder agreement that sets out the main agreement between the shareholders on the operation of the project company and the project. Particularly, if EPC contractors or operation company participate as shareholders, conflicts of interest can arise and protection of minority stakeholders is also necessary. The main rules appearing in shareholder contracts are as follows.

(a) The obligation to invest capital is stipulated among project sponsors. The shareholders contract must state the initial capital contribution amount, method, and timing. In addition, it is stipulated that the additional shareholding ratio or the procedure of the shareholder when additional expenses arise due to the incidence of Force Majeure or the change of law during the project.

(b) When a local government or a local public corporation participates as a project sponsor, the form of capital investment usually consists of in-kind investment such as real estate necessary for project execution, not cash contribution. In such cases, objective criteria such as the value of the invested amount should be specified in the shareholders contract.

(c) Under the Concession Agreement, the Government shall impose a requirement to prohibit the transfer of a certain percentage of the shares held by the business owners as shareholders, up to a certain year after the commercial operation of the power plant, for example, up to 5 years after the commercial operation of the power plant. That is, it is a certain amount of equity holding requirement for a certain period. The pre - emption right of the existing shareholders is specified so that the pre - approval of the shareholders is necessary even if

some allowances are made, and it does not affect the value of the holdings of other shareholders and does not change the voting rights. The stock purchase price is generally the price that third parties pay.

(d) If contracts are to be concluded between the sponsor and the project company, stipulate prohibition of conflicts of interest. If the EPC contractor or operation company participates as the shareholder of the project company, the relevant shareholder is excluded when negotiating related terms and conditions.

(e) To discuss the composition of the board and the method of voting, and specify separately the resolutions of the general meeting of shareholders. However, in the case of minority shareholders, the details of the shareholders' meeting decisions requiring unanimity shall be specified so as to minimize the tyranny of the largest shareholders through the board of directors. Therefore, fierce negotiation of unanimous decision items among shareholders is required.

(f) The credit support scheme of sponsors at the request of the lender shall be described in great detail. Sponsors credit enhancement should be paid to the project company in the form of additional investment by the sponsor to cover the additional construction cost up to a certain amount when the additional construction cost exceeds the fixed contract amount in the EPC contract.

5.2 Major contract with the project company

☐ Special Project company (SPC)

Before or after acquiring business development right, the sponsor establishes a project company in the local area, and the contract company of all the contracts concluded in the IPP business is the project company. Project companies are primarily responsible for financing, designing and constructing power plants, and operating them after they have been completed.

☐ Major contract

The contractual subject of all contracts in the private sector development project is the project company. As a result, the project company contracts with most stakeholders. The representative contracts are as follows and will be addressed in detail in the future.

(a) Implementation agreement (IA) with the government of the host country
(b) Power Purchase Agreement (PPA) with power recipients
(c) Project Finance contract (PF) with the lender
(d) Fuel supply contract (FSA) or water use contract with fuel supplier
(e) EPC Contract with Construction Contractor
(f) Operation & Maintenance agreement with Operation company

5.3 Major contractual issues with the host government of investment.

□ Government of the host country

The government of the host country is an important party in granting development business rights. The government will ultimately decide whether to implement the project and can influence the overall investment environment, regulatory situation and political stability of the country in which the project is implemented, and support for the construction and operation of the power plant. Issues to be discussed between the government and the private sector include the granting of development business rights and the period, prohibition of the acceptance, confiscation or nationalization of projects and private business assets, changes in laws related to project operation and revenue, regulations or tax matters, Political issues, These matters are stipulated in the concession agreement between the government and the private sector.

□ Implementation agreement (IA) or concession agreement (CA)

It is also referred to as a concession contract or a concession contract in which the government of host country concludes a contract with the project company. The project company is obliged to design, construct, finance and operate the infrastructure of the infrastructure, and the government has the obligation to give the project company the right to

use, revenge or operate the facility. First, the government provides power plants that the sponsors invest locally and guarantees the electricity rates of the power purchasers according to their operation and power supply. In addition, the project company provides the guarantee to the government to raise the project financing within the time frame or the extended period, to finance the construction of the power plant, and to guarantee the commercial operation by constructing the power plant. If the project company violates the agreement, the government may charge a deposit on the performance guarantee and if the power buyer does not pay the electricity fee, the project company may charge a deposit to the government based on the guarantee provided by the government. In addition, the main issues addressed in the Conventions are:

(a) The effective date of the contract and the term of the contract shall be indicated, and the effective date shall be the date on which the financial termination of the project financing contract occurs and the contract period shall be 20 to 30 years from the commercial operation date of the power plant.

(b) The Government shall cooperate and support various licensing and renewal applications, and shall comply with the principle of non-discrimination in comparison with those in the host country. In addition, the government ensures that major assets of the project company will not be forcibly confiscated or nationalized. Also, importantly, governments should be allowed to deny licenses to other competitors in the area that may affect the purpose and operation of the project during the project.

(c) The project company can design, construct, install, test, etc. through contract with the EPC Company, but the project company is ultimately responsible. In addition, it is possible to manage the operation and management of the power plant through a contract with a separate operation company, but the project company is ultimately responsible for the same.

(d) Provide a solution to the reduction of tax benefits due to various tax exemptions and changes in legislation. In particular, this provision is important in mitigating the withholding problem of the host country in the repayment of loans or in the payment of dividends, and sponsors must obtain the maximum benefit from the government.

(e) Remittance of foreign currencies and exportation of foreign currencies, as well as exchange regulations, shall be freely permitted to export foreign currencies.

(f) Additional restrictions may be imposed on stocks of some proportion of sponsors to ensure that the power plant operates stably for a certain period of time, for example five years after the commercial operation of the power plant.

(g) The cause of force majeure is classified into three types: (i) Political force majeure, (ii) Changes in laws and regulations, and (iii) Other reasons. List items that are excluded from force majeure. In the event of a force majeure, the project company will not be liable for the default in that period, and the implementation period will be extended. If the cost of power plant operation is increased due to changes in regulations, the buyer of the PPA compensates the purchaser, but if the buyer does not compensate the buyer, the project company should request a deposit based on the payment guarantee provided by the government. To mitigate the risk of political irresponsibility, it is possible to consider participating as a business owner in a local state-owned enterprise, or receiving a stake in a financial investor as an MDB or ECA.

(h) Provide details of each party's events of default and the detailed procedures for seeking remedies. Before the government exercises its right to terminate the contract, it must notify the lender and provide the lender with an opportunity to heal the default of the project company.

(i) If the government chooses to take over all rights of the power plant by exercising the contract cancellation rights due to the default of the project company, the project company must pay the agreed compensation. On the other hand, if the project company terminates the contract due to the government default, the project company can exercise the right to transfer the power plant to the government, and the government must pay the agreed compensation at the same time. If a PPA power buyer or a project company terminates the contract due to a change in the law, the power plant must be transferred to the government and the government must pay the project company the agreed compensation. In the event of a contract termination due to political irresponsibility, the project company will be compensated in consideration of various cases.

5.4 Major contracts with the lenders.

□ Lenders

The lender refers to the financial institution that lends the project finance to the private power generation project through the project financing. In order to provide long-term financing with a low interest rate, the project sponsors usually takes a look at the availability of finance from the public export credit institution or the international development financial institution of the country where the project owner is located. If additional loans are required. If the public export credit institution participates in the project, the financial support conditions are more advantageous than the commercial finance, and participation alone will not only serve as a catalyst for financial procurement by improving the reliability of the project, This has the advantage of being able to induce direct and indirect support from the government of the investment host country. Since the project finance secures the future cash flow and asset value of the project, the lender examines the contracts of various projects in the process of signing the financial contract to see if the repayment of the principal is impeded. The lenders attempt to secure financial support by instructing them to make amendments to the terms of the contract that would impede repayment of the principal. If all the prerequisites for financing are met after the financial contract is concluded, then loan funds will be paid to the project company in the manner agreed. Thus, the lenders can have a significant impact on the project because the amount is the majority of the project cost, and negotiations with other parties are made based on this influence, and the parties will almost always follow the request of the lender.

□ Project Finance

Financial contracts consist of the Common Terms Agreement, the Facility Agreement, and the Intercreditor Agreement, which are concluded between the Lenders, which describe the common conditions of the lenders

(a) Common terms agreement (CTA)

A common terms agreement is a contract that defines financial structures and financial conditions that will be common to all lenders. Different financial terms for each lender that are concluded between the lender and the borrower and not defined here are specified in the individual loan agreement. Given the increasing complexity of the PF financial structure and the increasing tendency of lenders with varying currencies and financing conditions, the Borrower negotiates financing conditions similar to those of their respective lenders and issues a bilateral loan agreement It is not a matter of time or cost to conduct financial negotiations in such a way that a single contract generally encompasses the financing conditions common to all lenders rather than concluding an individual loan contract, It is common practice in practice to sign contracts for common financial terms in the first place. In addition, since the common financial terms are stipulated in one contract, at least in terms of the common financial terms, it is meaningful also in terms of minimizing the possibility of inconsistency or collision of contract contents among tranche.

(b) Loan agreement (LA)

Individual loan agreements are contracts between the lender and the borrower, which specify the items that need to be determined separately, such as the interest rate, loan principal repayment plan, and commission fees. If the contents of the individual loan agreement do not match or conflict with the contents of the common financial term contract, the contents of the common financial term contract, which is the party to the lender and the borrower, take precedence.

(c) Intercreditor agreement

The PF includes various financial institutions such as export credit agencies (ECA), multilateral development banks (MDB), and commercial banks as major lenders. Since the interests of the major states are different in terms of the levels and the execution of the lien, it is necessary to specify in detail the financial rights and obligations of the lenders and the intercreditor principle. For example, the execution of lien rights, the waive of rights, and the amendment of contracts are made possible by the consent of the majority shareholders, If the loan principal is repaid from the borrower, provisions to distribute it according to the loan

ratio(pro rata) are typical. Financial contracts that prescribe these contents are contracts between the lenders. In a typical syndicate tied-loan financing, the syndicate tied-loan contract actually includes the agreement between the lenders. Therefore, it is not necessary to conclude a separate lending agreement. In addition, the PF may not enter into agreements between lenders by stipulating what is required in a common financial terms contract. However, in recent years, there have been many cases in which a separate lending agreement is concluded due to the participation of various lenders and the complexity of the financial structure.

5.5 Major Contract with the Off-takers

□ Off-takers

The power buyer purchases power from the project company and pays the power fee to the project company in return. In the IPP business, the purchaser of electric power can be changed according to the electric power market of the host country. For example, in many developing countries, there is a monopoly power market created by power public corporations, and in some countries there are also operators with multiple transmission lines with power markets open, and there are also multiple power buyers. The project company generates sales and profits through electricity bills paid by the buyer of electricity, and uses them to repay the loan and to return the investment profit. Therefore, the lenders that provide loans to project financing also consider the credit and trustworthiness of the power buyer with extreme caution, and in developing countries, they require government guarantees or other credit enhancements. In a developing country where a monopoly power market has been established, a power purchase contract with a power company, a power buyer, will be concluded with the project company to purchase 100% of the electricity produced. Sometimes, in countries where power sales can be made between countries, a power purchase contract is signed, which takes up only 50% of the generated electricity. For the remaining 50%, the project company directly searches for another power buyer and sells the power. It is not easy to fund financing through project finance because the stability of electric power sales is not secured and financial support is not feasible.

□ Power Purchase Agreement (PPA)

In the Power Purchase Agreement (PPA), the power seller becomes the project company, and the power buyer becomes the state-owned enterprise responsible for supplying power to industrial facilities or homes. Power buyers in developing countries usually have a monopoly position. The power purchase contract determines the key terms and obligations to be respected between the parties. These terms and conditions are the key to procurement of project financing, and project financing is the basis for this. Once a plant is operational, it is an important contract that underpins a project to repay the loan principal, pay for operating the plant, and guarantee the return on investment, in cash flows generated for at least 20 years. Because of these characteristics, the credit status of the power buyer is evaluated to be very important, and if the credit is not sufficient, it should be supplemented by the government guarantee. In the IPP project, the main contract conditions(for instance construction period, plant performance, operating period, etc.) in the electricity purchase contract are determined and then Is determined the contents of related contracts such as EPC turnkey contract, operation & maintenance contract, Therefore, for the success of the IPP project, the power purchase contract is very important. From the standpoint of the project company, it is necessary to enter into an unconditional take-or-pay contract to pay electricity fees regardless of how much electricity is actually supplied in order to stabilize imports accruing to the PPA desirable. However, even if a take-or-pay contract is concluded, the plant cannot receive a fee if it does not perform normally. That is, the plant must be in the ready for Generation state, regardless of whether the plant is operational or not. Other key PPA provisions are:

(a) The contract period must be much longer than the loan principal repayment period, usually between 20 and 30 years. The effective date of the PPA is the commercial operation date, which is the time when the plant is completed and commercialized. Power buyers are required to observe during EPC contract testing to ensure that the plant is operating safely, meet environmental pollutant emission standards, and ensure that performance is implemented properly.

(b) The tariffs paid by PPA buyers are divided into payment for capacity and payment for energy. The capacity charge covers the project company's fixed O&M costs, the principal repayment costs, and some of the committed revenue to the sponsors. This fee is paid

regardless of whether the power buyer generates electricity according to the power supply instruction, and it is a form of unconditional take-or-pay. And energy rates cover variable O&M costs and fuel (water charges for hydroelectric power) and related costs. This is a fee calculated according to the amount of electricity produced and supplied. Therefore, it is not paid during the period when the power plant is not operated.

(c) The project company should provide power buyers with estimates of the availability of the power plant on a yearly, monthly, weekly and daily basis. Based on this information, the power buyer can balance his or her commitment to power the end consumer and the power purchase commitments. Therefore, if the project company fails to supply electricity due to a power outage other than the scheduled outage time permitted for the maintenance of the power plant facilities, the planned damages will be charged accordingly.

(d) The types of liquidated damages in PPA are roughly divided into three types. The first is the delayed commercial operation of the power plant due to delayed construction, the second is the performance LD (Liquidated damage) which is less than the actual performance of the power plant, and the third is the capacity that was supposed to be contracted after commercial operation. It is the LD that is charged to the project company when it is not provided. The delayed LD and the performance LD should be synchronized with the EPC contract. In this way, the project company can receive the delay LD and performance LD generated by the contractor's responsibility from the contractor, and pay the power buyer of PPA. For LDs after the commercial driving day, the power buyer of PPA will calculate the LD for the excess stop time after all the planned stopping time allowed to the project company is consumed. However, there is something to be aware of here. This is because the EPC contractor overlaps the defects liability period and the PPA contract for the first two years. If the installer says that the power plant must be shut down to repair the fault, or if the plant is not functioning properly after repairing the fault, it will result in LD on the PPA. In this case, it is reasonable to let the contractor to ask for the LD to be generated so that the contractor can ask for the LD generated in the PPA under the EPC contract. However, the contractor strongly refutes the fact that the compensation for the defect will be charged at his own expense, but that the liability for the LD on the PPA is not his responsibility. But the contractor's obligation to construct the EPC contract implies the contractor's intended obligation to guarantee conformity. It is usually the case that the contractor usually includes

the part that the contractor has to fulfill on the PPA. And the contractor will be obliged to compensate for the loss of the LD on the PPA caused by the failure to repair the defect.

(e) The force majeure clause shall be made in a manner similar to that of the Concession Convention, for instance, political irresistible force, change of laws and other force majeure. Therefore, in the event of certain force majeure events, the implementation period shall be extended equally in accordance with the provisions of the Conventions and the PPA. However, even during periods of force majeure, the power buyer needs to continue to pay the project company the capacity charge.

(f) Failure to Default and Termination of Contract: If there is a default of the project company, the power buyer notifies the lender to give the lender an opportunity to heal the cause. If the power buyer fails to pay the electricity fee, the project company holds the contractual right of termination. In practice, however, it is difficult to exercise contract termination rights because there is no other power sales outlet if only the power buyer is obliged to buy the produced electricity. In such cases, electricity tariffs may be preserved in accordance with the guarantee provided by the government of the host country under the Concession Agreement. However, if the electricity purchasing contract is terminated before the termination of the repayment of the loan principal, consideration should be given to how the loan will be repaid by the borrower.

(g) A Direct agreement between lender and power buyer and lender's right to enter: In response to the default of the PPA liability of the borrower project company, lender has been involved in the operation of the power plant by entering into a direct contract with the power buyer who did not exist in the original contractual relationship. Or to sell the power plant to a third party without causing the termination of the other major contracts.

5.6 Major Contract with the Construction Contractor

□ EPC Contractors

Generally, in the IPP business, the construction contractor is responsible for the design of the power plant, purchasing and installation of the equipment, and is called the EPC contractor.

The project company ensures that EPC contractors bear the risks associated with the design, construction, testing or performance of the plant through an EPC contract with the contractor. Power plant construction usually takes three to five years, during which most of the project funds are exhausted and the long construction period exposes EPC installers to many risks. Particularly, the IPP project is based on the project finance, so the selection of the EPC contractor and its role are very important for the successful project execution, since the contracted power plant should be completed within the fixed time and cost. If the timely completion of construction fails, construction costs are exceeded, or a power plant with under-contracted performance is built, it will adversely affect the project's business profits and eventually lead to a loss of lending and a decrease in investment profits.

□ Engineering, Procurement and Construction Turnkey Contract (EPC)

It is no exaggeration to say that most of the cost of the entire project is exhausted through construction contracts. In IPP projects, EPC turnkey contracts are mainly used in the form of construction contracts. If an FIDIC construction standard contract is used, an EPC contract will be concluded based on the Silver Book created reflecting the demands of the lender. In a typical EPC turnkey contract, the contractor is obliged to design, construct and deliver the construction object in accordance with the PPA, which is the purpose of the contractor's project company, until the completion date, in return for the fixed construction payment. In order to do this, the contractor should select and manage a number of subcontractors to complete construction objects and to enable commercial operation on the PPA. The key issues surrounding the EPC contract in the IPP business are as follows.

First is a time limit, which includes contractual incentives and delayed LD so that the contractor can complete on time. Second, it is a cost, but it is necessary to include contractual incentives so that the contractor can complete it within the scope of not exceeding the planned construction cost. As a result, the lender will select a competent EPC company that has proved sufficient and focuses on managing the completion risk. Third is performance, which should ensure the performance and efficiency specified in the client's requirements sheet when the power plant is completed. It is normal for the project company to pass on the completion risk accompanying the project to the contractor. This is because the construction contract, which does not require the completion guarantee but the project financing, is a

contract to transfer as much risk as possible to the contractor so as not to extend the constructor and increase the construction cost. However, even with a solid EPC turnkey contract, it is meaningless if it is difficult to trust the construction period technologically and financially. Therefore, due diligence on the experience, technology, and financial condition of the contractor is important. The following matters are important to the EPC contract in the IPP business.

(a) Unification of Construction Responsibility: A well-made EPC contract makes the contractor solely responsible for all design, procurement, construction, test operations and inspections. In many cases, a contractor may have a form of a consortium or a joint venture. In this case, it is common that multiple members have jointly and severally liable to the client.

(b) Fixed Contract Price: The benefit of the risk or reduction of the excess of the construction cost in the EPC contract shall be solely the responsibility of the contractor. If the contractor is compensated for the additional construction costs, it is limited to cases caused by the interruption of the client or when the client instructed the construction changes on the construction object. Otherwise, the contractor shall bear the risk of exceeding the construction cost because he has committed the design, purchase and construction within the scope of works for the given construction cost.

(c) Fixed completion date: EPC Contractor shall have the obligation to complete within the fixed date or fixed period after commencement of construction. If the construction is not completed by that time, the constructor will be liable for the construction delay and will be charged with delayed LD. This is intended to cover the delayed LD that the Project Company will incur as the commercial operation specified in the PPA is delayed. Of course, if there is a delay in the construction period due to the interruption of the client, the contractor will be granted extension of the construction period accordingly.

(d) Consistency with EPC contracts and other core contracts: It is important that the EPC contracts are to be written in accordance with the other core contracts. In particular, the interaction with the PPA is very important, so that the following are consistent: (i) completion date; (ii) the contractor's performance guarantee shall cover the performance guarantee provided to the power buyer by the project company; (iii) ensure that the LD

mechanism under the EPC contract is well aligned with the project's accountability structure in the PPA; (iv) ensure that the relevant provisions of the PPA that define the limits of overall liability and indemnities are kept to the contractor as well as the project company; (v) ensure that the EPC contract extension provisions extend to back-to-back on the PPA; (vi) The force majeure clause shall also be made in the PPA and its provisions and back to back; (vii) The installer must be able to connect the power plant to the transmission grid; (viii) the test operations and inspection procedures in the EPC contract shall be as described on the PPA; (ix) The details of the fuel type should be consistent with the requirements of the PPA.

(e) Commissioning and testing: The EPC contract provides detailed advice on the inspection system, which, if the contract fails to meet the required performance level, will result in a performance LD. The power plant has three main inspection systems. First is the function test, which is a test of the function of the power plant part. Second is a pollutant emission test, which is a very important test. If the required level is not met, the power plant may become legally inoperable and be subject to significant penalties from the government of the host country. Third, performance criteria must meet the minimum performance criteria. If the target performance is not attained, the performance LD is affected. Failure to meet the minimum performance requirements can seriously undermine the economics of the plant and lead to the need to rewrite the repayment structure of the principal and interest.

5.7 Major Contract with the Operation & maintenance Company

□ Operation & Maintenance Company

The Operation & Maintenance Company is a party that concludes a project management contract with the project company for the stable operation of the plant completed by the EPC Company. The operation period of IPP business is usually 20 to 30 years, and it is necessary to operate the power plant at the initial predicted level in order to generate a continuous profit that can provide loan repayment and investment income. The management and operation of the power plant can be regarded as a general process in which a third party is employed or one of the sponsors is responsible. The role of the operation company in the IPP business is important because it deals with matters related to fuel supply in relation to the fuel supplier during the operating period, In relation to the construction contractor, opinions on the

operation of the power plant are provided at the design and construction stage. It will contribute to the acquisition of the power plant through the support of completion inspection and personnel training. In relation to the government or business approver, it will be responsible for preparing the return of the power plant at the end of the project period.

□ Operation and Maintenance Agreement

Proper operation and management of the power plant is a very important factor for sponsors and lenders, as it affects the productivity of the plant, the fulfillment of contractual and environmental requirements, and the ability to generate sustainable revenues. The operation and management of the power plant may be undertaken by the project company, or by one of the sponsors, or by the subsidiary of the sponsor. In some cases, the operation and maintenance of the power plant is separated and the company supplying the turbine and generator, which is the generator of the power plant, is entrusted with the management and maintenance of the equipment. The contract term of the operation & maintenance agreement need not be the same as the entire duration of the project. However, in the case of the lender, it tries to steady the operation and management of the power plant at least until the expiration date of the repayment of the principal and interest. Therefore, the operator of the power plant should have sufficient experience and know-how and a competent company capable of inputting skilled manpower. The operator is also responsible for the continuous maintenance of the plant's core facilities. The cost of the operator of the power plant is relatively small compared to the sales generated according to the PPA. Therefore, the operator shall set a limit of liability for losses incurred by operation of the power plant, and limit it to 50% to 100% of the price paid by the operator according to the bargaining power. Because of this limitation of liability, project companies and lenders need very competent operators. In addition, appropriate incentives and penalties should be provided for the payment of operations management. Operators shall continue to operate the plant at any time other than the scheduled annual outage time, which will allow the operation to be suspended for the purpose of plant inspections. If the project time is exceeded beyond the scheduled time limit, the project company will charge the operator with a scheduled availability LD that is less than the desired availability. And the scope of works and performance criteria of the operator. On the other hand, the indemnification clause of the operator is specified in detail, among which the operator is exempted from the loss due to the fault of the project company or the loss

caused by the failure of the contractor to repair the fault during the defect responsibility period of the contractor. In an O&M contract, there are several ways in which a payment can be made.

(a) In the case of payment of an operating management fee at a fixed amount, the operator shall bear the risk of actual costs incurred in operating the plant. If the actual cost of management is less than the fixed amount paid, it will be profitable, but if it is the opposite, it will lead to loss. This type can be certain from the perspective of the project company, but the burden of the risk is increased for the operator. Therefore, if the operator intentionally lowers the management cost in order to avoid the risk, the quality of the service is degraded and the quality of the consumable parts is lowered.

(b) Operators receive fixed bonus and performance bonus, but there is a way for the project company to bear the costs of operations management entirely. In other words, the costs incurred by the operation are borne by the project company. This structure also provides the operator with a performance bonus for power generation, thermal efficiency and emissions from power plant pollutants.

(c) As a mixed type of the above method, for example, up to 20-30% of the cost may be covered by the operating cost of the operator, but the cost of the operation may be borne by the project company. The operator must be ready for operational management before the plant is completed. Therefore, in O&M contract, so-called 'mobilization period', it is usual to give the operator 12 months' preparation period from the commercial operation date of the planned power plant. The project company pays a mobilization fee to cover the cost of the operator during this period.

5.8 Main Contract with the Fuel Supplier

□ Fuel Supplier

Fuel supplier means a contractor who supplies fuel such as coal, gas or water for power generation at a power plant. Stable supply of fuel above a certain level is very important for the smooth operation of the IPP business, If the fuel supply is insufficient or the quality of the

supplied fuel falls and the contracted power plant operation cannot be achieved, the project company will not be able to earn enough to provide loan repayment and investment profits. Typically, the fuel supplier will depend on the type of power plant, and if the plant is a thermal power plant, the coal or LNG supplier will be the fuel supplier. If hydroelectric power is generated, a water contract is signed with the municipality located upstream of the river to secure a stable flow of water.

□ Fuel Supply Agreement (FSA)

Power plants can be divided into thermal power generation and hydro power generation. In the former case, separate fuel is required for power generation and a long-term fuel supply contract with the fuel supplier should be concluded. In recent trends, power buyers have been in charge of supplying necessary fuel, which is called "tolling arrangement". The energy price paid by the power buyer in the power purchase contract includes the fuel cost. Since the costs are transferred to the buyer, the cost of fuel and the risk allocation of the fuel supply contract are important issues for power buyers. The main contents of each contract are summarized as follows.

Fuel Supply Contracts Fuel supply to the power plant as well as uncomplicated transportation is an important factor for project success. It is clear that the power plant cannot run without proper supply of fuel. Since the fuel supply takes place over a long period of time, the project company, the fuel buyer, requires the seller a supply guarantee as well as a price guarantee. For this reason, the force majeure clause and the price adjustment clause are especially important for the seller. In addition, a stable transportation network must be secured for stable supply of fuel. Key sectors to be addressed in a typical fueling contract include: (i) the necessary fueling arrangements; (ii) specifying the type and quantity of fuel to be delivered; (iii) Specification of the delivery method - supply of gas through pipelines or supply of coal using railways, conveyors or trucks; (iv) an unconditional payment agreement with a minimum quantity of supply using the "take or pay" method; (v) price clauses, including escalation indices or price adjustment mechanisms. If the fuel is supplied by a third party. First, appropriate amount of fuel can be supplied continuously. Second, fuel transport must be secured. Third, the fuel cost must be stabilized despite fluctuation of transport cost.

□ Water Use Agreement (WUA)

For hydropower generation, it is important to build a new hydroelectric power plant and secure the right to use water as much as we want. In the case of hydroelectric power generation, it is necessary to enter into water contracts with municipalities located upstream of the rivers to generate electricity using the flow of rivers, so as to change the flow of rivers or to prevent water from being confined upstream. The main content of the water use contract is that the local government located upstream of the river where the power plant is located gives the project company the right to use the water and does not impound the water upstream to prevent the proper amount of water from flowing into the power plant. Of course, local governments also give reasons for exceptional impoundment. The reason for temporary impoundment is that, for example, in the case of an emergency, impoundment is made according to the self - determination of the local government, when serious threats to life and property are imposed, impoundment is made for the public good can be. On the other hand, municipalities do not make any guarantees or commitments on sufficient quantity of river. This is a matter that the sponsor and the project company will judge through a preliminary feasibility study.

So far, I have summarized theories about the overseas IPP business. This allows us to improve understanding of our overseas IPP business. Based on this, I will look at the cases of overseas business of K-water and suggest ways to improve K-water's overseas business.

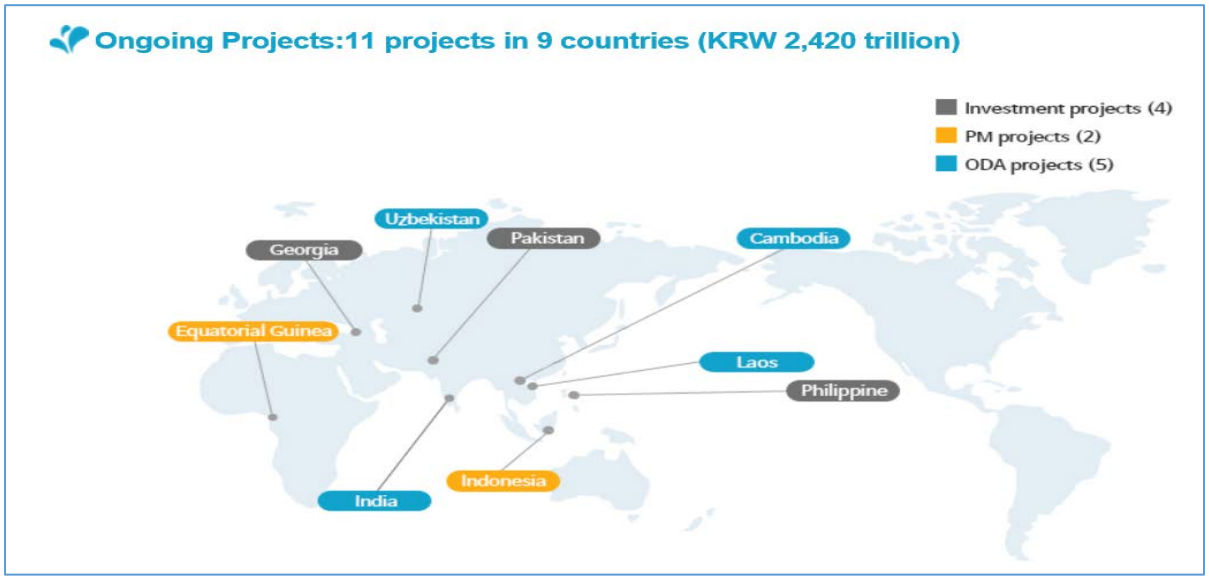
6. K-water Overseas Business Case Analysis

The analysis of the Overseas Business of K-water will be conduct in the order of K-water Overseas Business status, K-water Overseas Business Risk Management, K-water Overseas Business Process, and K-water Overseas Business Strategy.

6.1 K-water Overseas Business Status

K-water starting with the "Fenhe River watershed Survey in china" which was a grant aid project in 1994, received a total of 86 project orders (3 investment projects, 2 project management projects, 81 ODA projects) by 2016. Among them, the investment project

started in 2009 with the Patrind Hydropower Project in Pakistan, won three projects (Patrind in Pakistan, Angat in the Philippines, Nenskra in Georgia) by 2016. By the end of 2017, 11 projects are being implemented in 9 countries. K-water has set its goal of achieving overseas sales of 300 billion KRW in overseas business by 2026, and is strengthening the development of core value-added technology and professional training.



<Figure 3: K-water overseas business status>

6.2 K-WATER Overseas Business Risk Management

K-water evaluates the selection of overseas business as five essential items: strategy synthesis, business structure adequacy, risk reduction plan, and business expectation effect. Strategy synthesis is evaluated to promote business centered on strategic countries. Considering the participation of Korean EPC such as Korean contents. Risk mitigation measures assess risk factors in the areas of technology, legal and environmental. It also assesses the role fulfillment and expected effects as a public corporation. Also, it is evaluated by applying profitability index (PI) method.

K-water's risk management organization is managed by the development department and the deliberative department at the development stage. The operation department is responsible in the construction and the operation phase. The main tasks of the operation and technical

departments of the company are dedicated to the technical risk management of the construction and operation of the project. The finance department also periodically checks the financial performance of the project and participates in project management. The actual company's risk management is handled by the project company. The overseas project company manages its own risk management in accordance with the local corporation operating rules. In response to the occurrence of serious risk, the crisis management manual is established and managed according to the characteristics of the local corporation. K-water defines the procedures for risk management review at the overseas business development stage in company operation guidelines and procedures.

6.3 K-water Overseas Business Procedures

(1) Development stage

(a) Business discovery: Collect and report business information and conclude confidentiality agreement (e.g. NDA : Non Disclosure agreement) when necessary.

(b) Basic research on business performance: Analysis of investment environment (business conditions, political/economic/industrial environment, socio-cultural and legal system) and business feasibility (economic/financial/ technical feasibility) analysis.

(c) Deliberation by the selection committee: In order to decide whether to promote the project, timing and priorities, they review the compatibility of overseas business strategies and planned projects, the selection of project items, and the necessity of business. At this stage, business selection, reservation, and cancellation are decided.

(d) Preliminary investment review: Based on the business review report, all works and basic plans (including basic design) corresponding to the project feasibility study will be reviewed before the main review.

(e) Review of investment and funding deliberation committee: Review the bid or proposal (concluding the conclusion of the conclusion of the conclusion) for the participation of the business to the private experts who have abundant knowledge in four fields such as

investment, finance, accounting and law. This shall take place 90 days before the submission of the investment. Review the data, including project progress, project outline, total business expenses, financing plan, financial statements, risk and response plans by sector, and future plans.

(f) Deliberation of Overseas Business Risk Management Committee: Decision on whether or not to participate in the business considering the business risk shall be decided by the final decision. (a) Decision to participate in investment, operation management or technical service business with total investment of over 3 billion KRW. (b) When a serious problem is expected to occur or is expected to occur in a construction or operation business, and a risk check and countermeasures are needed.

(g) Deliberation of Investment Review Committee: Based on the business plan report of the business division, it examines whether or not to start business including project execution plan. It shall be held no later than 90 days before the submission of the bid or proposal (concluding the Concession Agreement) for participation in the project.

(h) Government consultation, Preliminary feasibility study and deliberation by the board of directors: Overseas projects that exceed a certain standard (considering capacity or amount) should be consulted and approved by government departments in terms of risk management. The government will deliberate on its own, or it will commission a preliminary feasibility study to the outside professional institution (KDI) designated by the government in advance, and notify the applicant whether it is possible to carry out the project based on the results. When the approval of the government is completed, the decision of the decision maker is approved and the board of directors reviews the approval, conditional approval, or rejection of the project.

(2) Construction phase

If the total project cost is more than 10 billion KRW, the project process rate is 30% or 60%. We perform an interim evaluation of the project. The items to be evaluated in the interim evaluation of the project are focused on minimizing risk of construction completion by analyzing the difference between planning and execution, appropriateness of execution, and

possibility of exceeding the project cost.

(3) Operation phase

K-water's overseas business is currently in operation since the completion of the Patrind Hydropower Project in Pakistan in 2017. In order to enhance operational management, O&M manuals are prepared and familiarized with the staff, while the operational technical reviews are directly managed by the head office. The Business Management Committee and Overseas business Risk Management Committee are held to manage the risks of the business being operated.

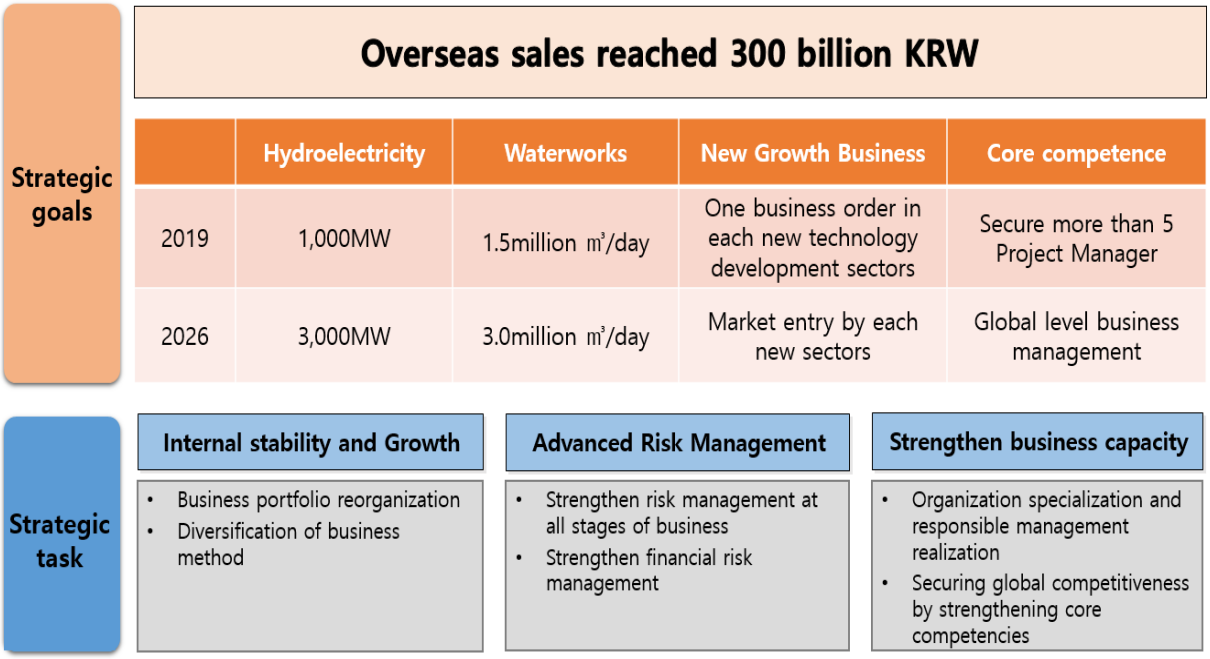
Overseas Business selection committee	▪ Time : after establishing the first business plan ▪ Target : all overseas business
Preliminary investment review	▪ Time : (Bid) Before PQ document submission (proposal) Before feasibility study ▪ Target : Business exceeding 3 billion KRW
Preliminary feasibility study (KDI)	▪ Target : Over 100 billion KRW in total project cost (More than 50 billion KRW for national finance + public institution burden)
Investment and funding deliberation committee	▪ Time : Before this investment review ▪ Target : investment projects over 10 billion KRW
Investment Review Deliberation Committee Overseas Business Risk Management Committee (Investment decision)	▪ Time : Before submitting the tender or proposal ▪ Target : Same as preliminary investment review
Management strategy meeting	▪ Target : The agenda passed by investment review deliberation committee
Board of directors:	▪ Target : Final investment decision, establishment of investor company, sale of stake etc.
Business Management Committee	▪ Time : Twice a year (second half of the year) ▪ Target : all businesses that are operated and managed
Overseas business risk Management Committee (O&M)	▪ Time : In case of serious risk ▪ Target : all businesses that are operated and managed

Interim evaluation of business	▪ Time : construction process rate of 30%, 60% ▪ Target : Over 10 billion KRW of total project cost

<Table 3: K-water overseas business procedure>

6.4 K-water Overseas Business Strategy

Through its mid-long-term strategic management plan in 2016, K-water set a goal of achieving 300 billion KRW in sales in overseas businesses by 2026. Hydropower generation, water supply, and new growth businesses have been set in detail strategic tasks and fostered core competencies to achieve them.



< Figure 4: K-water overseas business strategy structure>

	Hydroelectricity	Waterworks	New Growth Business	Core competence
short-term ('19)	Sales 50 billion KRW 1,000MW	Sales 50 billion KRW 1.5million ㎥/day	One business order in each new technology development sectors	Secure more than 5 Project Manager
	Start strategic country business development	Start strategic country business development	Smart Water Management Order	Talent exchange, recruitment of external experts
Long-term ('26)	Over 200 billion KRW in sales 3,000MW	Over 50 billion KRW in sales 3.0million ㎥/day	Over 50 billion KRW in sales Market entry by each new sectors	Secure more than 30 Project Manager
	More than One business order in potential country	More than One business order in potential country	More than One business order in each new sectors	Global level business management

< Figure 5: K-water overseas business Detail strategic goals>

6.5. K-water Overseas Business Success Factors

K-water's success factors in overseas business is finance procurement ability, network management ability, talent management.

(1)The ultimate success of overseas business is adequate financial procurement capability. K-water judges whether it can finance procurement first when entering into overseas business and is carrying out business. From the beginning of the project, we have shared information on projects with the Korea Export-Import Bank (K-EXIM) and MDB, and are constantly aware of the need for financing. In the Pakistan Partrind project, 75% of the total investment was invested by K-EXIM, ADB, IFC and ISDB (Islamic Development Bank). The Angat project In the Philippines was invested by Hana Bank, Shinhan Bank, China bank savings, and bank of Philippines, accounting for 55% of the total project cost. This financing is possible because K-water has made a consensus through continuous network with financial institutions and has made efforts to bring WIN-WIN business structure to each other and gave confidence to K-water.

(2)Continuous network management capability. Since 1997, K-water has been running international education programs to expand its overseas human network, and has conducted international education for 2,334 people in 97 countries. K-water is also leading the creation

of the Asian Water Council (AWC) in 2016, making it the gateway to the overseas water market.

(3) Continuous talent management for overseas investment projects. The fact that we have been able to carry out four investment projects with less than 10 years since we started our overseas investment business is the result of training overseas talent in a short time and placing it in the right place. K-water is continuing to take training courses in overseas business education institutions in order to train overseas project managers. K-water is continuously making efforts to cultivate talented people through local practical training.

Despite the above success factors, K-water has many problems in overseas business. So, I would like to suggest ways to improve it.

7. Improvement plan of K-water overseas business

In order to present K-water's overseas business improvement, K-water overseas business SWOT analysis is essential. This will help us to overcome our weaknesses and threats and to find ways to improve our opportunities and strengths. Based on this SWOT analysis, I found out the improvement points of the overseas business of K-water.

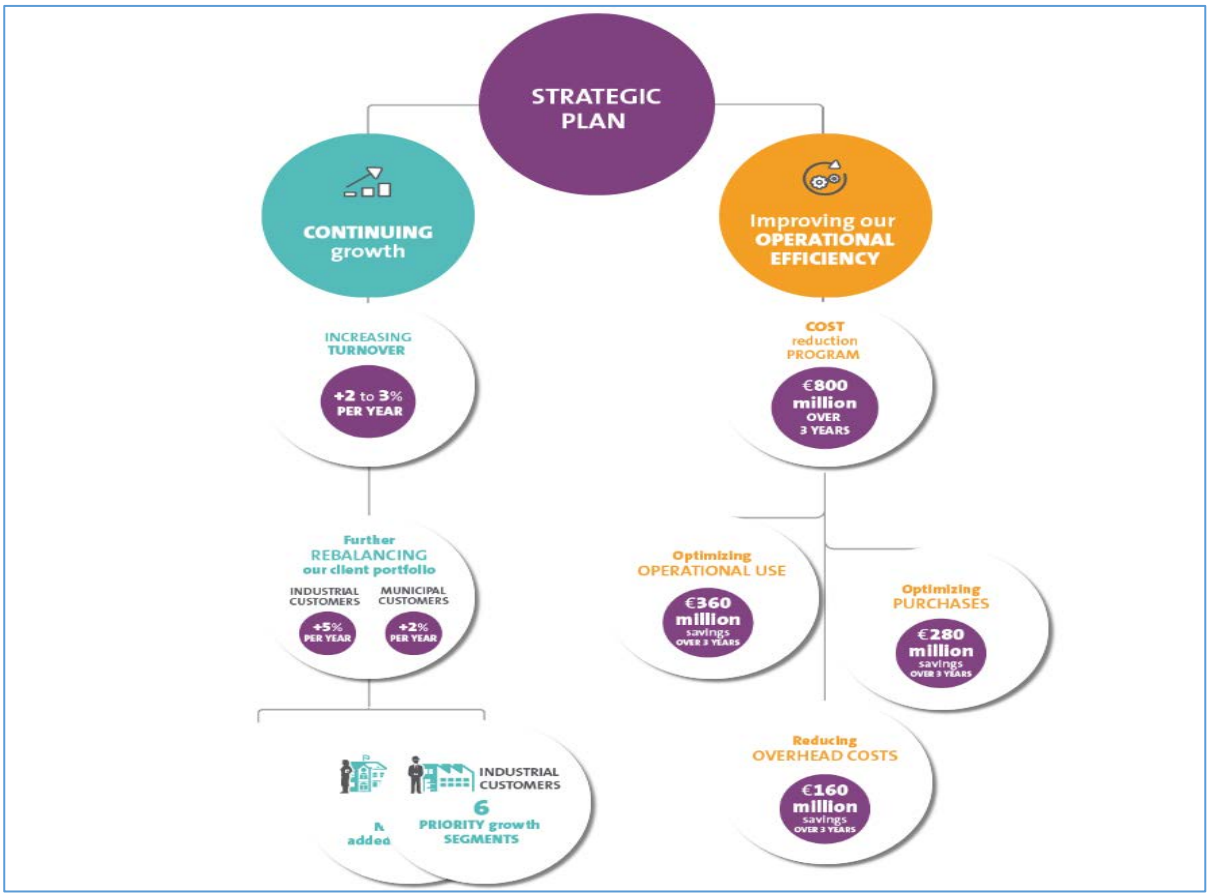
Strength	Weakness
• Accumulated know-how in domestic water management for 50 years • Hydraulic and water supply O&M operational capability • Diversify business area with SWM (Smart Water Management) and IWRM (Integral Water Resource Management) • Establish risk management system for all phases of business • Expansion of global network including AWC(Asian water council) foundation • High external credibility as a public enterprise ➢ Advantages of bankability	• Insufficient investment management risk capability • Lack of specialists (technology, finance, contracts, etc.) • Inadequate regional infrastructure due to one-off projects based on individual projects • Lack of success in large-scale investment projects • Absence of new business experience such as seawater desalination business • Restriction as Public enterprise ➢ Investment constraints, complex decision making system, auditing by the board of audit and inspection of Korea, etc. ➢ No tolerance for failure
Opportunity	**Threat**
• Global Water Market Sustainable Growth • Water management issues include global megatrends • Actively support government's public- private joint venture ➢ Overseas market development funds Support, GIF (Global Infrastructure Fund), infrastructure Master Plan fund support etc.	• Global companies are actively responding to profit generation such as streamlining of operations, acquisition of equity stakes and preemption of potential market • China's low-price bid competition for business • Limitations of domestic water companies' overseas advance ➢ lack of technology and low market share • Limitation of policy finance overseas expansion support ➢ Lack of political power, commercial capability, interest rate competitiveness

<Figure 6: K-water overseas business SWOT analysis>

7.1 Improvement of overseas business strategy

K-water is set to target overseas sales of 300 billion KRW by 2026 in accordance with its mid- long-term strategic management plan in 2016. However, the target sales composition is ambiguous and unclear, as overseas hydroelectric power generation (200bn KRW), overseas water resources business (50bn KRW), and overseas new growth business (50bn KRW). We need to set clear and grounded strategic goals for our overseas business. For instance. In case of Veolia. The world's number one water company, this company's new 2016-2018 development plan aims to profitable and sustainable growth. It concentrates on two main areas: a gradual recovery in revenue growth on one hand, and continued operational

efficiency improvements on the other.



<Figure 7: Veolia company strategy>

In addition, according to the mid-long-term strategic management plan of overseas business, it is necessary to calculate the appropriate manpower scale of overseas business and perform systematic manpower management. A long-term human resource plan should be established and systematically managed in cooperation with the HR team to secure experts such as training internal experts and recruiting external experts.

7.2. Improvement of overseas business structure and portfolio

(1) Improvement of overseas business structure

Most of K-water's overseas investment projects focus on hydropower IPP projects and the region is concentrated in Southeast Asia. In addition, K-water is not able to provide a total

water solution, unlike the world-wide water company that provide total water solutions. In addition, lack of technology development and business promotion in the specialized field of water management and business diversification due to lack of experience are still small

To improve K-water's overseas business structure First, business concentration and business diversification are necessary. The business concentration strategy is to expand the scope of K-water's water business, expanding its business scope from water source to faucet, and strengthening the technology for all water related processes. Based on this, we have to develop smart water management Business (IWRM, SWM). We need to diversify our overseas business into water-related renewable energy such as Floating photovoltaic and tidal power, which are likely to grow in the future with business diversification strategy.

For instance. Veolia, the world's number one global water company, was founded in Lyon to supply water for France in 1853, and for the first time in its overseas business in 1880 as a water supply business in Venice, participating in the energy business in 1935 and the waste business in 1953. They have succeeded in business diversification. Veolia is the only group in the world that provides all kinds of environmental services. Veolia's business areas are the four environmental services sector: Veolia Water, Veolia Environmental Services, Veolia Transport, and Veolia Energy. Target customers are government, local governments, Industry. Veolia Water, the world's largest water company with a service population and revenue basis ($24,390 million total revenue; 2016) has an integrated management capability for the full water cycle process and can provide various combinations of solutions from simple operation and management to the whole business. It also maximizes added value by providing facilities and systems together with operational management services.

(2) Improvement of overseas business portfolio

We also need to improve our business portfolio for Greenfield (new business), Brownfield (existing business), linked projects and renewable energy projects. A balanced portfolio reorganization is needed for profit generation and future market preoccupation. Hydroelectric power generation and waterworks should generate profits by continuously investing in overseas business in the field of cash cow. On the other hand, the seawater desalination and smart water management projects, which have high growth potential but lack sufficient

domestic infrastructure, should gradually accumulate experiences and knowledge through entering the pilot business instead of excessive investment.

We also need to diversify our business portfolio into the Brownfield business through investment and operational management capabilities in the existing Greenfield business. There should also be a plan to promote M & A through system improvement. Currently, the bidding and proposal business is limited to pursue K-water overseas business which is not yet competitive. Therefore, it should be considered to promote business concentration and business diversification through mergers and acquisitions of specialized companies that have accumulated technology and experience in Brownfield.

(3) Improvement of K-water overseas business priorities

The priority of investment in promoting overseas business is essential for efficient business execution with limited resources. First, it is necessary to divide the overseas business promotion countries into base countries and strategic countries. It should be selected as a base country with a network with K-water or entered into business (Pakistan, Philippines, Georgia, etc.) and expand overseas business in the base country through strategic alliance with local companies and acquisition of stake. Based on this, it is necessary to identify the business potential and purchasing power and select a strategic country, and step-by-step expansion of the business from the base country → strategic country → strategic area is necessary.

7.3. Improvement of overseas business risk and financial risk management

In the case of K-water, we are not aware of the risk difference between the domestic and overseas business due to the domestic business-oriented business, and the history of the investment business is short so that accumulation of know-how for systematic business management is lacking. In addition, all stages of business risk management system is established, but the decision authority and responsibilities are unclear, and there is insufficient action in case of urgent risk due to rapid decision making and lack of expertise.

(1) Improvement of overseas business risk management

Overseas business risks should be divided into stages and the improvement plan should be reviewed. During the business development stage, the project selection committee should confirm the target business through the preliminary investigation and screening of the new business, and proceed through the deliberation to select the good business. When selecting core business, it should minimize business risk by clearly examining whether it is business that meets strategy, whether project financing is possible, whether it is business with stable sales, technically possible business, and profitability. In the participation decision stage, not only business feasibility analysis based on business feasibility, but also strategies for responding to business risks should be reviewed to finalize business participation. In the business management stage, the business management committee should proactively manage the daily risks through preliminary discovery to prevent any major risks from occurring, and prepare a risk management system that can promptly report to the upper committee and management when major risks occur.

(2) Improvement of overseas business financial risk management

When the project is decided by the project in the early stage and the period elapses, there is a case that is inconsistent with the outlook. Unlike thermal power generation, the hydropower BOT project is difficult to standardize, and there is a great deal of risk and financial burden due to investment risks caused by large-scale capital investment and dam construction. Thus, foreign investment projects should be promoted by screening according to the principle of majority stakes involved in securing the leading decision-makers about business with a stable structure such as revenue assurance. In addition, diversification of financial structures such as IFC Loan and Asset-backed Commercial Bond should be utilized to minimize business development and investment risks. In addition, the factors influencing business performance should be constantly monitored and an objective financial impact should be presented through separate financial analysis. It is necessary to find out the factors that deteriorate the business such as the input of additional funds and the execution of the excess budget through the annual outlook of the project which is the development stage, the construction stage and the operation stage.

7.4 Improvement of overseas business project finance

Project Finance is a financial technique that provides the funds necessary to carry out a project with future cash flows secured from a particular project. These terms frequently appear in overseas construction and large projects, and are a form of financial technique that is based on the profitability of the project itself, rather than on the value of the business owner's credit or material collateral to drive the project. Therefore, profitability of business projects is important. The profitability of the project is affected by the expected sales of the project and the expected return on the project and the project capital structure. K-water's expected rate of return is based on borrowed capital cost + basic risk premium + project risk premium. The capital structure of international PFs is usually 70% of bank borrowings and 30% of equity capital, but it varies depending on the nature of the project.

(1) The expected return of investors in overseas business is a criterion for stopping or continuing the business, so calculating and evaluating the expected rate of return is a major problem for investors. The current expected return rate for K-water overseas projects is weak on a theoretical basis, so it is necessary to review the criteria for calculating the expected return rate and to recalculate the appropriate expected return rate. It should be defined by reflecting national and business risks for economic and financial feasibility. In addition, the financial model should be improved to reflect the expected rate of return.

(2) The capital structure of the project is called the D/E ratio (Debt/Equity ratio). The D/E ratio is the ratio of debt to equity and is a major problem for business investors. If the sponsor invests a lot of equity capital, the profitability and risk of the sponsor increases, while if the sponsor invests through the bank borrowing, the profitability and the risk of the sponsor become low. Angat project was initially 65% in debt and 35% in equity capital. However, equity ratio increased to 45% of debt and 55% of equity capital. At present, Solomon's project, which is conducted by k-water, was initially 70% in debt and 30% in equity capital. However, the debt ratio increased to 90% of debt and 10% of equity capital. This D/E ratio is a problem that directly affects the profitability of the sponsor and the risks, so the optimal D/E ratio should be analyzed and applied to the overseas business.

(3) We need to know project finance techniques and systems of financial institutions. Success of the project is impossible unless the project financing is finally completed. From the beginning of the project, it is necessary to identify the possibility of bankability of the project

and fully understand the system in the bank. For example, banks should select high profitable projects with DSCR (Debt Service Coverage Ratio: cash flow/debt principal and interest), which is the bank's project investment standard. The DSCR required by the bank usually requires 1.2 to 1.3 or more. If the project has a low DSCR, the bank may require a sponsor's contingency equity, so it should develop its expertise to negotiate with banks through various financial techniques.

7.5 Improvement of overseas business construction and operation management

The biggest risk in overseas business is the risk of completion of construction. Looking at K-water overseas business case. In the case of the Pakistan Partrind project, there was a delay in the commercial operation day (COD) to the delay due to the lack of SPC-led work. In the Philippine Angat project, there was a drop in profitability due to declining power generation costs in the electricity market and delayed project financing. In the case of the Georgia Nenskra project, there was a delay in construction due to insufficient responses to EPC claims and European banks' strong demand for environment & society impact from project.

(1) The main reason for delaying construction is lack of preliminary investigation and wrong design. In the case of hydroelectric power generation projects, there is no precise survey on dam geology in advance, which causes excess costs such as location change and design change, leading to profitability deterioration. Therefore, it is necessary to thoroughly investigate and check the matters related to the initial geology, and to prepare sufficient reserve funds in case of emergency. It should be thoroughly managed through the Overseas Business Risk Management Committee, and the business analysis should be reexamined immediately when business changes are made to maintain process management and profitability management.

(2) In the overseas IPP business, the operation of the power plant should be selected by a trustworthy and experienced operator. To this end, K-water's water resources operation subsidiary should be newly established and a plan should be put in place to utilize it in overseas business. Most of KEPCO's projects operation are carried out by KEPCO's power generation subsidiaries and specialized companies. Therefore, in the future, K-water should foster a competent operator company to manage overseas business and promote efficient

business. In addition, measures should be taken for process control through periodic audits and operational manuals.

7.6 Improvement of overseas business organization and core competency

The K-water Overseas Business Organization is divided into Overseas Business Headquarters, which is a domestic organization, and Overseas Business local branch office, which is an overseas organization.

In the case of the overseas headquarters, which is a domestic organization, the responsibility for O&M management, financial affairs, and legal affairs should be transferred to the overseas headquarters. It is necessary to specialize and slim down the organization by specializing overseas business manpower and nurturing experienced manpower. The organization of overseas headquarters should separate the business management and business development functions and establish the step-by-step business management capability and give clear responsibility and role. In addition, it should perform the support role of the local branch office.

Local overseas branch office, which are overseas organizations, should be established for business development and network formation with major countries. The Strategic Country shall establish and operate a local office for the purpose of carrying out business after the conclusion of the contract, and establish a holding company or regional general office in the future when ordering a number of projects in the same country or region. Through this, it is necessary to promote the synergy between the projects and to promote independent business by strengthening decision-making autonomy and responsibility of local branch offices.
In accordance with the Mid-Long-Term Strategic Management Plan (2016), the company established a goal of nurturing 30 overseas project manager, technical and financial experts by 2026, and cultivating more than 50% of the overseas headquarters personnel as experts.

To accomplish this, we will develop overseas dispatching program specialized in overseas business and arrange overseas headquarters and carry out mandatory duty for a certain period immediately after return to prevent degradation of acquired ability and to use and spread immediately. PF, Construction design, etc. which is difficult to secure its own capability,

should be actively recruited from external talent through professional positions or open positions. MDB and consultants should be invited to establish a practical education program for financial and environmental impact assessments to strengthen the capacity of participating in overseas projects. It is necessary to simultaneously promote the transition of the internal manpower professional who has secured the competence.

In addition, new customized human resource development programs should be introduced. In case of KEPCO, one-on-one apprenticeship system has already been introduced and coaching experience and practice for overseas business by matching with one on one. K-water should also introduce such a system so that the capacity of overseas project managers can grow in a short time.

8. Conclusion

In this paper, we examined the structure and major risks of IPP business as well as key issues of major contracts. IPP projects require extensive procedures and review processes from development to operation. In order to understand this, it is necessary to concretely summarize IPP business and it is necessary to organize the whole framework. This is because it is necessary to acquire knowledge of the IPP business in general and make good use of it to enhance the potential of IPP business success. In addition, I tried to improve the understanding of the public corporations' overseas business by examining the success cases of K-water, the representative public companies of the IPP business, the procedures and the factors that affected them. Despite the dissenting opinion that the public corporations do well in domestic business. Why should they do overseas business? The reason why public corporations do overseas business is to overcome the limit of stagnant domestic business and to create national wealth through mutual growth with domestic enterprises through overseas business. In addition, we are pursuing overseas business as a stepping stone to make a leap into a global company by overcoming unlimited competition in the global economy era. K-water has been diversifying its businesses since its inception in 1994 with the development of hydroelectric power generation, smart water management, water and sewage systems, and desalination of seawater. In the process, we plan to continue contributing to the creation of national wealth through joint venture with domestic construction companies and engineering companies. K-water, as the representative company of domestic water resources, should play

a given mission and role, and develop into a top glass company through continuous growth. . Water is the source of life and there are too many countries in the world that still lack water and energy. Therefore, there will be many things K-water needs to do to solve water problems in the world in the future. However, K-water in the world market is still lacking too much. Through further research and accumulation of experience in overseas business, I expect K-water to develop as a global water-resource public corporation.

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