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Project Finance Sample  
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# 1. Project Finance Introduction

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Project financing is a financing technique that has been used on many corporate projects. Using a carefully engineered financing mix, it has been used to fund large-scale projects such as natural resource projects, pipelines and refineries, and electric-generating facilities. Project financing is becoming the preferred methods of financing infrastructure and other large-scale projects world over.

Project Financing involves understanding the rationale for project financing, how to create the financial plan, analyse the risks, develop the financing mix, and raise the funds.

Project finance is separate from traditional forms of finance because the financier principally looks to the assets and revenue of the project in order to secure and service the loan. Normally, in an ordinary borrowing situation, the financier usually has little or no recourse to the non-project assets of the borrower or the sponsors of the project. Here, the credit risk associated with the borrower is not as important as in an ordinary loan transaction; most crucial is the identification, analysis, allocation and management of every risk associated with the project.

## 1.1. Project Determinants

The technical aspects of a production process consists of the production function which is a technical relationship between the combination of capital, labour, and natural resource, and the output. Technical efficiency of the firm is taken as granted, that is, that the greatest amount of output is produced from any given combination of inputs. Although there are different kinds of labour, natural resources and capital equipment used by the firm, it is assumed that there is only one kind of each of these inputs in order to isolate the essential aspect of production theory.

There are two technical aspects of a project - the technical requirement study (TRS), and the technical feasibility.

### The Technical Requirement Study

The technical requirements study concerns the detailed information all the various factor input required by the project. For every proposed project, the study should:

- ✓ detail the various items of the capital cost in both local currency and foreign exchange requirements,
- ✓ report the requirements of the project with regard to the quantity, quality and specification of each kind of raw materials, labour, supplies, fuel, power, water, transportation, and other inputs, and waste disposal,
- ✓ provide a comprehensive environmental impact assessment of the production activity,
- ✓ report the estimated production and overhead costs for operating the proposed plant in detail.

### The Technical Feasibility Study

The technical feasibility study helps determine:

- ✓ the technical requirements of the project,
- ✓ the location most beneficial, and

- ✓ the optimum size of plant.

It therefore requires the study, item by item, of the availability, quality, accessibility and cost of all the goods and services required for the project with particular reference to (a) alternative location and (b) alternative plant sizes.

### **Determination of Optimum Location**

Technical feasibility depends largely on location, for substantial differences usually do exist in the availability, accessibility, quality and cost of various factor inputs at different locations. The selection of the best location must be guided by the objectives of the entity. The best location is that in which the resultant of these forces produces the maximum profit or minimum cost.

### **Influence of Transportation Cost on Choice of Location**

An analysis of the transportation (procurement) costs of the raw materials, and those of the distribution costs, point to three possible locations:

- ✓ near the source of raw materials
- ✓ near the market, and
- ✓ at an intermediate point

The best location is that which gives the lowest total transport costs, that is, the sum of both procurement and distribution costs.

### **Size of Project and the Market**

The size of the Market gives the guide to the feasible range of alternatives of project size. There are four possible situations:

- ✓ the volume of demand (D) is smaller than the minimum possible size (M) of the project; that is  $D < M$ ;
- ✓ the volume of demand (D) is equal to the minimum possible size (M); that is  $D = M$
- ✓ the volume of demand (D) is larger than the possible minimum size or any intermediate size, but less than the largest possible (L); that is  $M < D < L$ ;
- ✓ the volume of demand is so large that it does not place any limitation on the scale of production, that is  $D > L$

In the first situation, the project is premature and there is no justification for its execution. In the second situation there is only one size alternative, and that is the minimum size. In the third and fourth scenarios, there are many alternatives and a project analyst must choose.

### **Project Size and Administrative Capacity**

Many projects may require high levels of operation involving efficient and adequate administrative capacity. When this is lacking, it may be beneficial to operate on a small scale at first, and then extend the scope later with gained experience. Thus, administrative capacity may constrain or limit the scope of a project.

### **Project Size and Technique of Production**

Some production techniques require a minimum scale of operation. Below this level costs would be so high that it would be unreasonable to operate at low capacity. Size alternatives that would force operation at low capacity would thus be eliminated.

### **Project Size and Location (Distribution Costs)**

The size of a project and location are related from two angles: (i) from the geographical distribution of the market, and (ii) from the influence of location costs and on the evaluation coefficients. Considerations of economies of large scale may incline one to install a big plant that can serve the largest possible market area. However, as the geographic distribution increases, costs from a single location would rise as a result of higher freights. Therefore, instead of installing one big plant in one location to cover a wide geographically dispersed market area, two or more medium-size plants may be installed at different locations in the market area. Thus, distribution costs are needed to be considered as they may impose some limitations on the scope of the project.

## **1.2. Project Financing Advantages and Disadvantages**

### **Advantages**

- ✓ **Non-Recourse** - Project financing allows the sponsor to construct a project where the loan is completely "non-recourse" to the sponsor. This means that the sponsor has no obligation to make payments on the project loan if profits are not generated afterwards (to cover the principal and interest). To minimize the risks associated with a non-recourse loan, a lender requires indirect credit supports such as guarantees, warranties and other covenants from the sponsor, affiliates and third parties.
- ✓ **Optimize Leverage** - In a project financing, the finance is to cover the costs of development of the project on a highly leveraged basis. Such costs are financed using 80 to 100 percent debt. High leverage in a non-recourse project financing permits a sponsor to risk less in funds, and finance the project without diluting its equity investment.
- ✓ **Off-Balance-Sheet Treatment** - Depending upon the structure of a project financing, the project sponsor may not be required to report any of the project debt on its balance sheet. Such debt is non-recourse or of limited recourse to the sponsor. Off-balance-sheet treatment can be beneficial in helping the sponsor comply with covenants and restrictions applicable to the funds.
- ✓ **Increase Tax Benefits** - Project financings should be structured to maximize tax benefits. It should also assure that all tax benefits are used by the sponsor or transferred, to the extent permissible, to another party through a partnership, lease or other vehicle.

### **Disadvantages**

Project financing takes a much longer time to structure, negotiate and document than traditional financing. The legal fees and related costs associated with a project financing can be very high. As the risks taken by lenders may be higher in a non-recourse finance of a project compared to a more traditional financing method, the cost of capital may also be higher.

## **1.3. Project Development Obstacle**

Following are a few obstacles to good project development.

- ✓ Lack of Pre-investment Studies - Projects are sometimes started without adequate pre-investment studies. Some studies are simple financial projections without in-depth analysis of the market and technical aspects.
- ✓ Wrong Location of Project - Optimum location is an important consideration in project studies. However, this is often ignored especially in government projects. Political considerations are often allowed to override all economies dictated with the result that projects become distressed even from the early stages of their implementation.
- ✓ Over-ambitious Projects - Some of the projects taken on by the government are sometimes over-ambitious for the existing level competency. The targets in the project become sometimes difficult to obtain as constraints like ineffective executive capacity, raw materials, working capital etc. arise early in the project subsequently affecting the rest of the deliverables.
- ✓ Manpower Constraints - Many projects, both in the public and private sectors have faced a lack of executive capacity at numerous stages of project cycle. This means unnecessary delays both in starting and implementing projects plans. Generally foreign consultancy services help during this time resulting in additional costs.
- ✓ Financial Constraints - Financial constraints could mean shortage of funds, to finance both fixed and working capital, lack of credit facilities and shortage of specialized finance institutions.
- ✓ Raw Materials Problems - The manufacturing sector of the economy is largely dependent on imports for basic raw materials and parts. Uncompetitive prices of final products, traceable to high costs of production, are a reflection of the prohibitive costs of raw materials.
- ✓ Inadequate Infrastructure - Lack of infrastructural facilities affects the development efforts of both private and public enterprises. Low supply of electricity, lack of water for industrial purposes and industrial work force, no direct access roads and transportation for produce evacuation, poor telecommunication, and inadequate housing for workers hamper the industrial landscape.
- ✓ Lack of Political Stability - Peace is a prerequisite for investment and growth of the economy. In a condition of wars, it would be difficult to maintain a consistent policy on development. This would attract less investors and diminish investments.
- ✓ Institutional Impediments - In some project areas, the land tenure system makes optimal location of projects very difficult. Problems of multiple ownership of land are encountered. There may also be cases of religious interference in the siting of projects. Certain animals are held to be sacred or unholy, and it would be going against the belief of the people to site projects involving these animals in such areas. Such projects could face resistance.

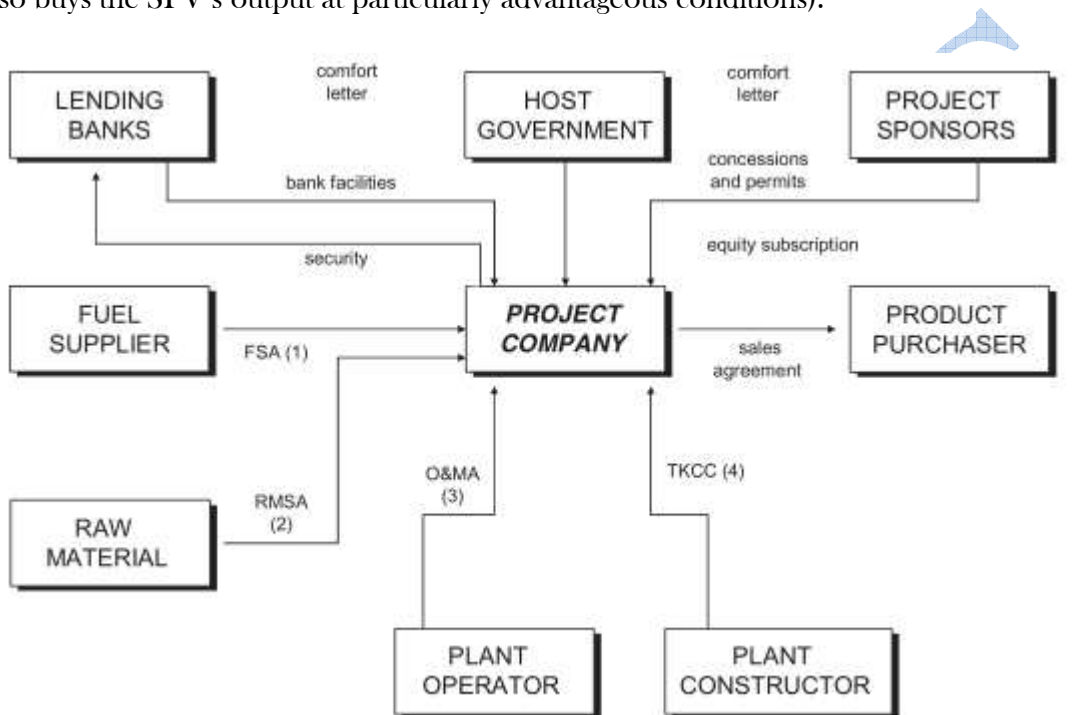
#### **1.4. Project Finance Features**

A project finance deal can always be viewed as a contractual network that revolves around the SPV. In fact, each counterparty sets up contracts with the SPV that refer to specific phases or parts of the project. The deal is successful when all the interests of the parties involved (though not always entirely compatible) are satisfied at the same time. Every contract, in turn, can include subcontracts with third parties and the provision of collateral guarantees.

The below figure provides a graphic representation of a typical contract framework used in projects involving cogeneration of electrical power. Some clarifications are called for regarding the model illustrated in figure.

First, a single participant in a project finance deal can take on a number of roles. In cogeneration projects, for example, the contractor can be sponsor, builder, and operator of a plant at the same time, either alone or in a joint venture with others.

In waste-to-energy facilities, the city administration or a consortium of communities or a municipalized company might act as supplier of solid waste to burn as fuel as well as shareholder in the SPV. Banks can be sponsors and lenders simultaneously. It should also be said that in project finance transactions, the fact that only a few players (i.e., the sponsors) participate in a variety of ways is perfectly natural. In fact, the primary interest of sponsors is to appropriate the highest share of cash flows generated by the project. By playing many different roles, they will gain from greater flows (in terms of both higher revenue and lower costs, for example, if the sponsor also buys the SPV's output at particularly advantageous conditions).



### The Contractor and the Turnkey Construction Contract (TKCC)

The contractor is the company (or consortium of companies) that wins the tender for the design and construction of a given plant on the basis of a fixed-price turnkey contract, often known as EPC—Engineering, Procurement, and Construction. Contract obligations are taken on by the main contractor (who commits directly to the SPV) and are later passed on to consortium members.

Among these players, there may also be an operator or operation and maintenance contractor who steps in after construction is complete. The main contractor is normally responsible for damages resulting from delays in completing the facilities but may also receive an early completion bonus if the project is finished ahead of schedule. In addition, the contractor is required to pay penalty fees (liquidated damages) if the plant does not pass performance tests on certain key variables at guaranteed levels.

### Operations and Maintenance Contractor and the O&M Agreement

The operator is the counterparty who takes over the plant after the construction phase is complete. This company handles maintenance for a set number of years, guaranteeing the SPV that the plant is run efficiently in keeping with the pre-established output parameters. Therefore, the operator plays a key role during the post-completion phase of the project finance initiative.

The operator may be an already-in-place company (perhaps even one of the sponsors) or a joint venture created to serve as operator by the shareholders of the SPV. In these cases, two or more sponsors constitute an ad hoc service company and grant equity. The ownership structure of the service company may or may not be the same as in the SPV.

### **Purchasers and Sales Agreements**

These are the counterparties to whom the SPV sells its output. Purchasers of goods or services produced by the plant might be generic, which means not defined ex ante (i.e., a retail market) or a single buyer who commits to buying all the project company's output. In this case, purchasers are called off-takers, who buy output wholesale based on long-term purchase contracts often signed on a take-or-pay basis.

### **Suppliers and Raw Material Supply Agreements (RMSAs)**

These companies supply input to the SPV to run the plant on the basis of long-term contracts that include arrangements for transporting and stocking raw materials.

## **1.5. Business models**

Various business models are used for rolling out an E-Government project and according to which, financing and revenue sharing is done.

### **Self-financed**

The project is completely self-financed and the project pays its development costs out of its own revenue, with no subsidies. An example is the Bhoomi project which is the Land Records computerization effort by the Government of Karnataka. The project is self-financing. The Government is earning around 20 crores from Bhoomi, a major share of which comes from fees charged to citizens for distribution of RTCs. This has actually resulted in a significant amount of surplus. This has enabled the Government to actually reduce the fees from Rs 15 per copy to Rs. 10 per copy.

### **PPP**

A public-private partnerships (PPP) is a contract between a private sector entity and a government body that call for the private partner to deliver a desired service and assume the associated risks.

Essential conditions in the definition are as

- ✓ Arrangement with private sector entity: The asset and/or service under the contractual arrangement will be provided by the Private Sector entity to the users. An entity that has a majority non-governmental ownership, i.e., 51 percent or more, is construed as a Private Sector entity.
- ✓ Public asset or service for public benefit: The facilities/ services being provided are traditionally provided by the Government, as a sovereign function, to the people.

Various types of PPP models used are

- ✓ **Build-Lease-and-Transfer (BLT):** a contractual arrangement whereby a concessionaire is authorized to finance and construct an infrastructure or development facility and upon its completion turns it over to the government agency or local government unit concerned on a lease arrangement for fixed period after which ownership of the facility is automatically transferred to the government agency or local government unit concerned.
- ✓ **Build Operate and Transfer (BOT):** a contractual arrangement whereby the concessionaire undertakes the construction, including financing, of a given infrastructure facility, and the operation and maintenance thereof. The concessionaire operates the facility over a fixed term during which it is allowed to charge facility users appropriate tolls, fees, rentals, and charges not exceeding these proposed in its bid or as negotiated and incorporated in the contract to enable the concessionaire to recover its investment, and operating and maintenance expenses in the project. The concessionaire transfers the facility to the Government Agency or Local Government unit concerned at the end of the fixed term.
- ✓ **Build-Own-Operate-and-Transfer (BOOT):** a project based on the granting of a concession by a Principal (the Union or Government or a local authority) to the concessionaire, who is responsible for the construction, financing, operation and maintenance of a facility over the period of the concession before finally transferring the facility, at no cost to the Principal, a fully operational facility. During the concession period the promoter owns and operates the facility and collects revenue in order to repay the financing and investment costs, maintain and operate the facility and make a margin of profit.
- ✓ **Build-Own-and-Operate (BOO):** a contractual arrangement whereby a concessionaire is authorized to finance, construct, own operate and maintain an infrastructure or development facility from which the proponent is allowed to recover its total investment , operating and maintenance costs plus a reasonable return thereon by collecting tolls, fees, rentals or other charges from facility users.
- ✓ **Build-Operate-Share-Transfer (BOST):** a contractual arrangement whereby a concessionaire is authorized to finance, construct, operate and maintain, share a part of the revenue and transfer the infrastructure facility at the end of the period. The proponent is allowed to recover its total investment, operating and maintenance costs plus a reasonable return thereon by collecting tolls, fees, rentals or other charges from facility users.
- ✓ **Build-Own-Operate-Share-Transfer (BOOST):** a contractual arrangement whereby a concessionaire is authorized to finance, construct, own operate and maintain, share a part of the revenue and transfer the infrastructure facility at the end of the period. The proponent is allowed to recover its total investment, operating and maintenance costs plus a reasonable return thereon by collecting tolls, fees, rentals or other charges from facility users.

### JV or Joint Venture

In this Joint Venture or JV model, an SPV (Special Purpose Vehicle) is formed to undertake the e-Governance project and /or to provide e-Services. The joint venture can be led by the government or by the private partner depending upon the strategic nature and sensitivity of the domain.



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