

# “BOO/BOOT PROJECTS AND NEW DIMENSION OF PROJECT APPRAISAL WITH SPECIAL EMPHASIS ON FEASIBILITY STUDIES AND CONTRACT DOCUMENTS”

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**T**he main objective of this paper is to show the latest developments of project appraisal methodology with respect to the emergence of BOO/BOOT projects in developing part of the world. The final outcome of this paper is to set an agenda to discuss issues related to the preparation of consistent feasibility studies and contract documents for the successful operation of BOO/BOOT projects. First, this paper presents a brief definitional preamble to the BOO/BOOT concept. Second, it deals with advantages and challenges of BOO/BOOT approach. Third, this paper explains the main characteristics of BOO/BOOT projects. Fourth, this paper presents the scope of works and terms of references for the feasibility studies on BOO/BOOT mega projects. The fifth part of this paper discusses issues related to the various contract documents and agreements relevant to BOO/BOOT projects. Sixth, this paper illustrates important factors for the success of the BOO/BOOT projects in developing parts of the world. Finally, concluding observations will be followed. In the annexure, the standard procedure adopted by Sri Lanka for the BOO/BOOT projects will be presented.

## **The Definition of a BOO/BOOT Project**

BOO/BOOT is the terminology for a model or structure that uses

private investment to undertake the infrastructure development that has historically been preserved for the public sector. Under the BOO/BOOT project, a private company is given concession to build and operate a facility that would normally be built and operated by the government. This private company is responsible for financing and designing the project. In most cases at the end of the concession period, the private company returns ownership of the project to the host government. However, this concession period is determined primarily by the length of time needed for the facility's revenue stream to pay off the company's debt and provide a reasonable rate of return for its effort and risk. Generally, BOT stands for build, operate and transfer or build, own and transfer (the terms are used interchangeably). The different forms of BOT variants include BOO (build, own and operate, ie without any obligation to transfer); BOR (build, operate and renewal of concession); BOOT (build, own operate and transfer); BLT or BRT (build, rent or lease and transfer); BT (build and transfer immediately), BTO (build, transfer and operate); possibly subject to installment payments of the purchase price); DBFO (design, build, finance and operate); and DCMF (design, construct, manage and finance); MOT (modernize, own/operate and transfer); ROO (rehabilitate, own and operate) and ROT (rehabilitate, own and transfer). Disagreement can be found regarding the origin of BOO/BOOT concept.

Some believe that BOO/BOOT concept has its historical roots in the concession systems of the nineteenth and early twentieth centuries. But others believe that BOO/BOOT projects differ so significantly from the old concession approach that their roots are much more recent. Under the old concession method, private sector has more autonomy but host government does not have more participation and more control on facility. But under the BOO/BOOT projects, host government decides on the need for the project and its scope, design, performance and maintenance and select the private sponsors by means of an appropriate bidding process.

## **Advantages and Challenges of the BOO/BOOT Approach**

The advantages and challenges of BOO/BOOT approach can be summarised as follows:

- 1 The use of private sector financing to provide new sources of capital, which reduces public borrowing and direct spending and which may improve the host government's credit rating.
- 2 The ability to accelerate the development of projects that would otherwise have to wait for, and compete for, scarce sovereign resources.
- 3 The use of private sector capital, initiative and know-how to reduce project construction costs,

shorten schedules and improve operating efficiency.

- 4 The allocation to the private sector of project risk and burden that would otherwise have to be borne by the public sector, The private sector is responsible for the operation, maintenance and output of the project for an extended period.
- 5 The involvement of private sponsors and experienced commercial lenders, which ensures an in-depth review and is an additional sign of project feasibility.
- 6 Technology transfer, the training of local personnel and the development of national capital market.
- 7 In contrast to full privatization, government retention of strategic control over the project, which is transferred to the public at the end of the contract period.
- 8 The opportunity to establish a private benchmark against which the efficiency of similar public sector projects can be measured and the associated opportunities to enhance public management of infrastructure facilities.

The main challenges of BOO/BOOT approach are the following:

- 1 BOO/BOOT projects require time to develop
- 2 The degree of host government involvement and support
- 3 Financial and legal complexity of BOO/BOOT projects
- 4 Requirement of suitable political, economic and legal environment.

The other challenges encountered by BOO/BOOT approach are explained in section six of this paper under the heading of factors affecting the success of BOO/BOOT projects in developing countries.

### **Main Characteristics of BOO/BOOT Projects**

The process of developing a BOO/BOOT project is complicated, time-consuming, and very expensive for the sponsors. For mega projects, several years can elapse before signature of the project agreement or closing of the financing. In that time, sponsors

may spend considerable amounts for feasibility studies, professional fees to advisors, consultants and cost of their own management time. Therefore, the host government should do everything to ensure an orderly, fair and efficient process, from bid solicitation, selection, contracting and permitting, through to project implementation. The following diagram shows the structure of a BOO/BOOT project.

### **Structure of a BOO/BOOT Project**

The three major parties involved in BOO/BOOT project are the following:

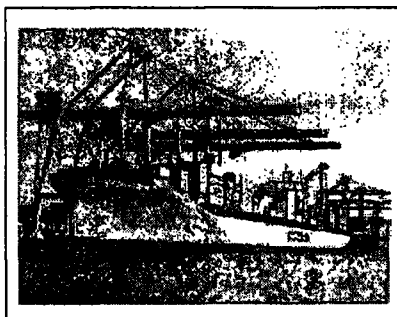
- (1) Host government
- (2) Project Company, and
- (3) Sponsors

As shown in the diagram, the host government and project company are linked through the project agreement. Project Company and sponsors are linked through the shareholders' agreement. Host government, Project Company and sponsors obtain advisory services from the outside technical, financial and legal advisors. On the one hand, Project Company directly deals with contractors, suppliers and operators through construction contract, supply contract and operation and maintenance contract and on the other hand, it directly deals with the government agencies, lenders and insurers through special agreements, loan agreements and insurance policies.

The required government support for the BOO/BOOT projects depends on complexity, size and type of the project and the host country's economic and regulatory conditions. In most BOO/BOOT projects, income depends on purchase agreements or market based revenues. In some cases, market based revenue is very uncertain and therefore, government may help them by entering into purchase agreements. Generally, the host government may provide legislative, regulatory, administrative and financial support and relaxation of labour laws, customs and currency convertibility, tax concessions, profit repatriation facilities and foreign investment protection.

The Project Company is the authorized person to carry out the project. Its rights and obligations are defined in the project agreement. Before the establishment of project company, a consortium is formed to review the request for proposals, prepare opportunity, pre-feasibility and feasibility studies, and to submit a bid. The selected sponsors will form a limited liability or a joint venture company with equity contribution from each sponsor. The project company is the vehicle for borrowing the funds to finance the project. It is also an entity that enters into necessary contractual arrangements with the host government and other parties involved in the development of a BOO/BOOT project. A project company may include other equity investors such as investment or merchant banks, which act as financial advisors to the project. Generally, the conflicts of interest of different parties involved in BOO/BOOT project can be solved through the board of directors the Project Company.

A sponsor consortium includes parties that are interested in entering into one or more of the contracts, such as a large international engineering and construction firms, one or more large equipment suppliers, and a firm with expertise in operating and maintaining the particular type of project. These parties are willing to contribute equity to the project in the form of cash, manpower, time and effort and or to give back of a portion of the fees they would normally earn on their contracts in order to have the opportunity to be the principal contractor, supplier or operator of the project.



The phases of a BOO/BOOT project can be traced as follows:

- 1 Identification Stage (project identification, mode of financing, preliminary feasibility study, assigning project manager and team, and host government decision).
- 2 Government preparation for Tendering (procurement procedure, pre-qualification, project agreement, tender documents and bid evaluation criteria).
- 3 Sponsor's preparation to Bid (form Consortium/possibly Project Company, feasibility study, identification of potential partnership and submit bid package).
- 4 Selection Stage (evaluation of bids, clarifications/adjustments and awarding of the project).
- 5 Development Stage (form project Company, equity contributions, loan agreements, financial closing, construction contract, supply contract, off-take contract, insurance contract, operation and maintenance agreement).
- 6 Project Implementation Stage (construction of facility and installation of equipment, testing, acceptance, technology transfer and capability building and evaluation).
- 7 Operation Stage (operation and maintenance during concession period, inspection, training, technology transfer and capability buildings).
- 8 Project Transfer Stage (transfer procedure).

#### **Preparation of Terms of References and Scope of Works for the BOO/BOOT Investors**

#### **The Main Contents of BOO/BOOT Projects Feasibility Study**

The respective Authority/ies of the host government/country should request from the project or facility development Consortium/s or Company to incorporate the following main aspects in their feasibility study:

- 1 Main objectives and the final outcome of the project or facility development.
- 2 Clear justification/contribution of the proposed project development on national and regional economy of the host country.
- 3 Clear and more precise estimation of costs and benefits (direct costs

and benefits should be in the format of cash flow tables) of the facility development.

- 4 Engineering design/s and the technical aspects of the facility development.
- 5 Manpower requirements of the project implementation, operation and maintenance.
- 6 Practical aspects of implementation of the project (ex: phase-out development).
- 7 Financial and commercial justification.
- 8 Economic and social justification.
- 9 Environmental and ecological justification
- 10 Procedure for risk identification and management.
- 11 Proposed new organizational setup for project implementation and supervision.
- 12 Procedure for monitoring and evaluation.
- 13 Timing of the transfer (including the possible extension of the concession period) of project ownership to the host government or designee at the end of the concession period.

#### **Scope of the BOO/BOOT Project Feasibility Study**

Feasibility study may be carried out in the following four stages:

- 1 Preliminary Study Stage
- 2 Technical and Engineering Study Stage
- 3 Commercial and Financial Study Stage
- 4 Economic, Social and Environmental Study Stage

The studies to be performed will include the following items at each stage with the scope of their services. The details of their stages are given below.

#### **Preliminary Study Stage**

This study stage mainly includes:

- (a) Data collection and confirmation of Line Ministry (Ministry to which project belongs) requirements. Collection of existing data, reports and other relevant information on the project in the host country. This includes collection of data and information on aspects such as topographic, geological, hydrological, meteorological, oceanographic, marketing, socio-economic.
- (b) Review and analysis of the existing data and reports on the selected project.

- Review of the overall development plan of the project.
- Review of the overall implementation time schedule.
- Review of appropriate sources of inputs to be used in the project, procurement aspects and delivery systems.

- (c) Preliminary commercial justification of the project (possibility of off-take agreement or market based revenue).
- (d) Establishment of conceptual site layout for the project
- (e) Preliminary site investigation and preparation of the tender specification for physical investigation at site and preliminary environmental study (if any).
- (f) Physical investigation of the site/s. This is necessary for feasibility grade design and detailed cost estimates for the site specific civil construction works such as meteorological investigations on land and sea, topographic investigations, hydrographic investigations, geo-technical investigations, oceanographic investigations, delivery system, water supply investigations, products/raw materials transport etc.
- (g) Investigations of other development activities taking place, existing infrastructure, and other conditions relevant to the development of the project comprising:
  - Socio-economic and environmental consequences of the project and recommendation of protective measures to be taken, if necessary.
  - Construction cost of site access by land and sea, and land/building acquisition etc.
  - Land and marine transportation for delivery/distribution of main products and by products, equipment and construction materials.
  - Availability and quality of construction materials and other inputs including sources of energy and their procurement.

#### **Technical and Engineering Study Stage**

The objective of this study stage is to ensure that BOO/BOOT project is soundly designed, uses the appropriate technology and meets in-

ternational design and engineering standards. This study stage mainly concentrates on the following aspects:

- (a) Technical design and engineering for all components of the project through developing optimized designs on systems and equipment/facilities layouts, etc., and provisions of key drawings and bill of materials, those with each justification of the technical option selected as being necessary for feasibility study including finalization of;
  - plant type and size including unit sizes
  - inputs type, procurement aspects and delivery system
  - cooling water and feed water systems (if any)
  - yard arrangements
  - storage facilities (crude/products)
  - fire brigades and other pre cautionary aspects
  - security of plant and assets
- (b) Detailed project cost estimates comprising construction, operation and maintenance. These estimates should be in cash flow tables in foreign and local currencies.
- (c) Construction planning and time schedule for implementation.
- (d) Manpower requirements (skilled/semi-skilled and unskilled) in phases of project implementation, operation and maintenance.
- (e) Reliability of the construction schedule (phase-out development).
- (f) Project capacity analysis (Planned and operating capacity output in major products areas), storage facilities and distribution analysis (if any)

### Commercial and Financial Study Stage

The main objective of this study stage is to ensure that BOO/BOOT project is commercially and financially sound uses the appropriate commercial and financial techniques and meets international financial standards to "bankable" the project (if necessary). This study stage

should concentrate on the following aspects:

- (a) Identification and location of potential customers for the main output and for the by products.
- (b) Demand analysis of different project output/products in the host country and the region.
  - Correlation analysis of different projects products with socio-economic indicators
  - Time series forecasting for different project outputs
  - Econometric modeling (This approach should concern the main variables such as anticipated trend in regional and world market).
- (c) Possibility of introducing new products into the market and off-take agreement
- (d) The actual and expected regulatory framework for the operation of the project
- (e) Investment profitability analysis (SRR, PBP, NPV, IRR, C/O and C/B ratios).
- (f) Liquidity and capital structure analysis (This should include the methods of financing, types of capital, debt/equity situation, financial structuring techniques and so on)

### Economic and Social Study Stage

The main purpose of this study stage is to assess and to report BOO/BOOT project's potential contribution to the host government's development objectives for the regional and national economy and, accordingly, the project's priority in the region's infrastructure development program. Economic and social study stage should include:

- (a) Adjustments for the monetary costs and revenues of project to reflect economic and social costs and benefits (shadow price analysis). For this part, UNIDO, "COMFAR III Expert" package will be recommended.
- (b) Distribution of costs and benefits of project between different sectors and income groups.
- (c) Sensitivity analysis on key project variables (prices, interest rates, inputs, construction period, market forecast and so on).
- (d) Additional economic considerations such as employment effects, net foreign exchange effects,

technical know how effects, forward and backward effects and so on (provisional).

### Environmental and Ecological Study Stage

The objective of this study is to ascertain and to report the impact of project design/s, construction, and operation on natural and man-made environment to get environmental clearance from the respective Environmental Authority/ties of the host country. This study stage mainly concerns:

- (a) Investigation of human settlements, roads, forests, animal life, land and sea utilization, air, water and soil pollution and various rights to be compensated in the study areas.
- (b) Existing environment-physical and biological systems.
- (c) Existing environment-human, economic, social and cultural aspects.
- (d) Project design, construction and operational impacts and mitigation measures.

### General Agreements and Contracts relevant to BOO/BOOT Projects

The respective Authorities in the host country should cooperatively work with the different parties involved in the development of BOO/BOOT project in preparation of the following contract documents and agreements to provide an appropriate and stable legal framework. These agreements and contract documents may be improved transparency and accountability in the project implementation, operation, maintenance and transfer activities. Furthermore, they give certainty about the completion of the project.

- 1 Preliminary consortium or joint venture agreement (sharing of cost of feasibility study, outside advisors and other preliminary developments of the respective project).
- 2 Project company agreement (This mainly associates with the host country's company laws, tax laws and foreign investment laws).

- 3 Consultant agreement (This may be applicable to external technical expertise, financial/economic expertise and business legal expertise activities. It mainly includes scope of work, qualifications/experience, type of consultancy, pricing/payment and professional liability).
- 4 Concession agreement (This document mainly includes the rights and obligations of the host government and the project company).
- 5 Off-take agreement (Terms under which the BOO/BOOT project company is expected to earn its revenues to operate at minimum capacity. This is very important to lenders, equity investors, host government and Project Company).
- 6 Construction agreement (This should include contracting options, lender and host government requirements, timing, quality, performance, pricing and payments, subcontracting and so on).
- 7 Equipment supply agreement (For heavy equipment required seaport, airport and power generation projects should prepare these contracts).
- 8 Operation and maintenance contract (scope of the operator's services, project company's responsibilities, warranties and guarantees, compensation, access to books and records, insurance, liability and indemnification, defaults and remedies, term and termination, dispute resolution and choice of the law).
- 9 Insurance contract (This contract mainly deals with general or country risks and more specific project risks. Insurance professionals must be consulted to find-out the best option from the recently developed international BOO/BOOT insurance schemes).
- 10 Financing contract (procedure for fund mobilization, types and sources of capital and financial risk bearing arrangement).
- 11 Security contract (matters related to escrow agents/accounts, appointment of trustee, inter-creditor agreement, rights of take over in failures, force majeure and so on).
- 12 Transfer contract (conditions for and timing of the transfer or, possibly, the renewal of the concession, scope of the transfer, maintenance and monitoring schedule prior to the transfer date, supply of inputs/spare parts after the transfer, marketing/sale procedure for the project outputs after the transfer, technology transfer, training of local personnel needed for the further operation of the project, environmental compliance, definition and allocation of transfer cost, warranties, passing the risks, cancellation of contracts and assignments, removal of objects owned by the project company, release of maintenance bonds and transfer procedure).

### Facts Affecting the Successful Operation of BOO/BOOT Projects in Developing Countries

The factors that are important for the success of BOO/BOOT projects in the developing part of the world, can be summarized as follows:

- 1 The project must be financially sound, feasible and affordable.
- 2 The country risk must be manageable.
- 3 There must be strong government support.
- 4 The project must rank high on the host government's list of infrastructure projects
- 5 The legal frame must be stable in the host country.
- 6 The administrative framework must be efficient.
- 7 The bidding procedure must be fair and transparent
- 8 BOO/BOOT transactions should be structured so as to be concludable within a reasonable time and at a reasonable cost.
- 9 The sponsors must be experienced and reliable.
- 10 The sponsors must have sufficient financial strength.
- 11 The construction contractor must have sufficient experience and resources.
- 12 The project risks must be allocated rationally among the parties.
- 13 The financial structure must provide the lenders adequate security
- 14 The currency, foreign exchange and inflation issues must be solved.

- 15 The BOO/BOOT contractual framework must be coordinated and must reflect basic economics of the project.
- 16 The public and private sectors need to cooperate on a win-win basis.

### Concluding Remarks

The above discussion has shown that under the BOO/BOOT project structure, project appraisal has widened its frontiers from traditional boundary to a new dimension. Especially, BOO/BOOT projects involve more detailed feasibility study and furthermore, they require many contracts and agreements with the major parties involved in the project development. After restructuring of economic activities and rationalization of public expenditure under the IMF/IBRD structural adjustment policies in many developing countries, the private sector has been given a leading place in the economy. Therefore, most of the governments have begun to promote infrastructure projects with the private sector participation that would normally be built and operated by the government. For the successful operation of the BOO/BOOT projects and to obtain more benefits to the host country, the policy makers of the developing part of the world should understand each and every aspect of BOO/BOOT project development explained above.

### Standard Procedure for the BOO/BOOT Projects in Sri Lanka

Apart from projects financed under the Consolidated Fund, infrastructure projects will be identified to attract private investment. The Bureau of Infrastructure Investment (BIT) of the Board of Investment (BOI) of Sri Lanka will function as the promoting, facilitating and coordinating agency for servicing the Ministries in this regard under the overall supervision of the Ministry of Finance and Planning. However, the final responsibility and authority will lie with the relevant

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Line Ministry and the Cabinet of Ministers. The standard procedure specified in Sri Lanka for the BOO/BOOT projects can be summarised as follows:

- 1 Project Identification (by Ministry of Finance and Planning/Line Ministry).
- 2 Appointment of Project Committee (by Secretary to the Treasury).
- 3 Feasibility/Viability Study Report (Line Ministry/Project Committee).
- 4 Approval of Priority Project (by Ministry of Finance and Planning/Cabinet).
- 5 Appointment of Cabinet Appointed Negotiating Committee (by Cabinet).
- 6 Preparation of Bid/Tender Documents (by Project Committee and Line Ministry).
- 7 Preparation of Documents laying down criteria of assessment of the technical/financial capability of the proponents, Terms/conditions and eligibilities (by Project Committee and Line Ministry)
- 8 Examination and Recommendation to Cabinet Appointed Negotiating Committee on assessment criteria prepared by Project Committee (Project Committee).
- 9 Approval of assessment criteria terms/conditions and eligibilities (Cabinet Appointed Negotiating Committee).
- 10 Request for Proposal to be issued to all those interested (by Line Ministry)
- 11 Examination and Recommendation to Cabinet Appointed Negotiating Committee the acceptability of the proponents selected (by Line Ministry)
- 12 Approval of Sponsors whose bids are substantially responsive (Cabinet Appointed Negotiating Committee/Cabinet).
- 13 Examination/recommendation on documents including methods of transfer, revenue sharing adjustment of stalls, fees, rates, rent, charges and etc., (by Project Committee).
- 14 Final Project Committee Report (by Project Committee)
- 15 Negotiation with the responsive bidders (by Cabinet Appointed Negotiating Committee).
- 16 Recommendation to Cabinet Appointed Negotiating Committee recommendation on sponsor (by Cabinet).
- 17 Approval of Cabinet Appointed Negotiating Committee recommendation of sponsor (by Cabinet).
- 18 Issue of Letter of Intent (LOI) to sponsor (by Line Ministry).
- 19 Final Price Negotiation (by Cabinet Appointed Negotiating Committee)
- 20 Final Proposals to be submitted to the Cabinet (by Cabinet Appointed Negotiating Committee and Line Ministry).
- 21 Signing of Agreement after Cabinet approval of final proposal (Line Ministry).
- 22 Notice to proceed (by Line Ministry)
- 23 Evaluation of progress of project (by Project Committee and Line Ministry).
- 24 Termination and release of performance bonds (by Line Ministry and Project Committee).