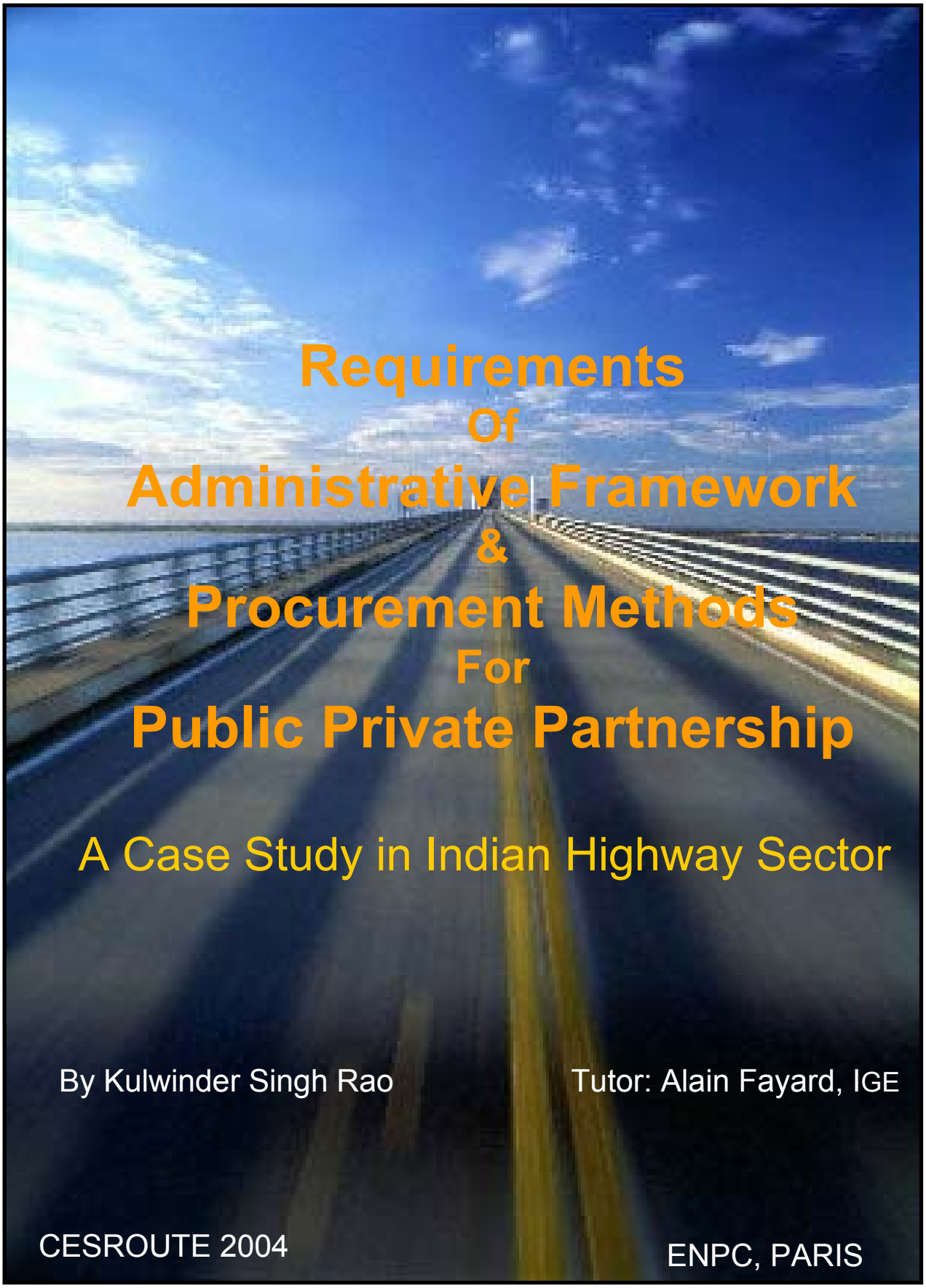
Requirements
Of
Administrative Framework
&
Procurement Methods
For
Public Private Partnership
A Case Study in Indian Highway Sector
By Kulwinder Singh Rao
Tutor: Alain Fayard, IGE
CESROUTE 2004
ENPC, PARIS

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Kulwinder S Rao

Paris.

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List of Abbreviations used in the Report

BOO	*Build Own Operate*
BOT	*Build Own Transfer*
CGM	*Chief General Manager*
DBFO	*Design Build Finance Operate*
DGM	*Deputy General Manager*
ENPC	*Ecole Nationale des Ponts et Chaussées, Paris*
GDP	*Gross Domestic Product*
GM	*General Manager*
GOI	*Government of India*
GOP	*Government of Punjab*
LPVR	*Least Present Value of Revenues*
NHAI	*National Highway Authority of India*
NHDP	*National Highways Development Project*
PIA	*Punjab Infrastructure (Development & Regulation) Act, 2002*
PIDB	*Punjab Infrastructure Development Board*
PRBDB	*Punjab Roads & Bridges Development Board*
PIRA	*Punjab Infrastructure Regulatory Authority*
PIU	*Project Implementation Unit*
PPP	*Public Private Partnership*
PSP	*Private Sector Participation*
PWD	*Public Works Department*
SNBATI	*Syndicat National du Béton armé, des Techniques industrialisées*
UNCITRAL	*United Nations Commission on International Trade Law*
UNIDO	*United Nations Industrial Development Organization*

I INTRODUCTION

Purpose and Scope of Project Report

1.1 Public Private Participation (PPP), as a means of engaging private sector in infrastructure development, has gained increasing attention from the governments across the world. The main reasons for this universal phenomenon are as follows: first, the governments try to tap the activity and creativeness of the private sectors, improve efficiency and settle the ubiquitous problems of the inefficiency in the operation of infrastructure; second, the governments try to solve the problem of the capital shortage by means of PPP in the face of financial constraints and the decrease of investment ability; last, public works and public facilities could be shifted to the track of private-ownership by means of PPP. In India too, PPP, especially in Build -Operate-Transfer (BOT) format, has emerged as preferred choice for road infrastructure development.

1.2 This report makes a general assessment of the processes involved in introduction of PPP concept in Highway sector. This report limits the focus on three elements that are important for evolving a working & efficient structure and methodology to select appropriate private partner. The elements being first, structure of Government Team or set-up responsible for PPP programme; second, procedures involved in selection of private partner and last, evaluation methods and criterion that might be used for evaluating the bids.

1.3 This report has been prepared as a part of **CESROUTE** programme at **Ecole Nationale des Ponts et Chaussées (ENPC), Paris**. The overall approach followed in the report is informative rather than prescriptive.

1.4 It has been author's objective to use this report to flag pertinent contextual issues that might need special consideration and attention in the course of adopting the BOT model successfully in India and particularly in Punjab. Accordingly, a summary assessment of the current state of affairs for both Punjab as well as federal level in respect of prevailing structures and procedures relating to BOT projects has been attempted.

1.5 This report is based on (1) literature review (2) interviewing of key technical officials in the French road administration and Industry (3) interaction with technical experts in Indian consulting industry (4) interaction with key technical officials of NHAI[1] and (5) case studies.

Structure of Project Report

1.6 The structure of Project Report is as follows:

- ***Section One-*** describes the purpose, scope & structure of this report.
- ***Section Two-*** is the general review of Public Private Partnership (PPP), related issues, PPP phenomenon in global highway sector. The extent of PPP in highway sector in India and Punjab has been briefed to give the contextual reference to this report.
- ***Section Three-*** deals with the administrative framework requirements in government agencies involved in bringing private sector participation in public infrastructure. A review of NHAI (at all India level) and PIDB[2] (at Punjab level) organization structures is made and possible new structures have been proposed.
- ***Section Four-*** briefs the objectives of public procurement and various selection procedures for successful PPP procurement. A review of procedures being followed at India level and in Punjab for PPP in road projects has been done. The section ends with the possible improvements in such procedures at the federal level as well as state level.
- ***Section Five-*** details various bid evaluation criteria that are adopted for highway concessions. Various technical and financial criteria adopted by NHAI and Punjab at the prequalification & bidding stage are described, and a possible format for bidding for road projects (least-present-value-of-revenues or LPVR) is described briefly for adoption in Punjab PPP initiative.

1.6 The final section provides the summary of main conclusions and recommendations postulated in this report.

[1] National Highway Authority of India
[2] Punjab Infrastructure Development Board

II PUBLIC PRIVATE PARTNERSHIPS

2.1 Investing in public infrastructure such as roads, bridges, ports, power plants and public utilities has traditionally been the responsibility of governments, both in capitalist and socialist economies. Governments have been using tax revenue and/or loans from commercial banks or international finance institutions like World Bank to fund infrastructure investments.

2.2 PPP is a partnership between the Public sector and the Private sector for the purposes of delivering a project or a service traditionally being provided by the Public sector. A host of terms exists to define such partnerships like Private Finance Initiative (PFI as it is called in UK), privatization, delegated management, concessions (as generically known in Europe) etc.

2.3 Given the current economic state of many developing countries and in order for the Governments to maintain adequate investments in infrastructure, an enormous burden is placed on public finances. Developing countries spend around US $200 billion in a year on infrastructure investment, of which more than 90 per cent is government-sponsored. Current estimates point to financing needs of about 5.5% of GDP for all developing countries - for both new investment and maintenance expenditures. The financing needs in low-income countries can potentially be as high as 7% of GDP. These figures translates into a requirement of US $ 465 billion annually by the developing countries with the demand split almost down the middle between new investments and maintenance.[3]

2.4 PPP structures enable leveraging of additional sources of funding of infrastructure. These can help to bridge the gap between the forever-increasing financing demands for infrastructure especially transports infrastructure and financial shortfall in available public funds. Thus, PPP can help to implement development projects without having to wait for future government budgetary supports for funding. According to the United Nations Commission on International Trade Law, (UNCITRAL), PPP is not only being used for large-scale projects but also being utilized for medium and small-scale projects.

[3] World Bank Policy Research Working Paper 3102

2.5 In India too, there is a marked need to improve the road transport infrastructure to sustain its recent economic growth. The immediate total investment required in roads sector is huge and is roughly estimated to be in the range of US $ 40 billion. In Punjab, the investment need on secondary road network has been identified at $1 billion over the next five years. Faced with increased economic constraints on capital spending, reduced borrowing capacity and the need to service debts, the Government of India (GOI) as well as Punjab (GOP) have been exploring ways to enhance and expedite their key infrastructure projects. GOI is aggressively targeting PPP to partially finance it road programmes. Similarly, GOP has stated that it is keen to adopt the PPP as one of the solutions.

2.6 PPP is not a panacea though. PPP is but one of several recommended methods[4] for implementing infrastructure projects which aim to improve value for money through transferring risk to those best able to manage it and by improving the integration between parties involved in the construction process. PPP should only be used where it is the best of these options and not solely, because capital budget constraints make it a convenient form of procurement. It requires certain pre-requisites for launching and enabling environment to make it succeed.

Reasons for Choosing PPP

2.7 Introduction of PPP was initially viewed as management structure choice. It was also taken as a reformist step by relying on the usual critique of existing bureaucracies. Such criticism can be summed up as those being-

- too costly,
- too slow, and
- unresponsive to the users.

2.8 However, it would be more objective to view introduction of PPP as a natural progression since the infrastructure needs of modern world have grown tremendously and hence call into play adoption of new formulae to adequately

[4] Other being Design and build and Prime Contracting

meet those. PPP has thus emerged as one of the responses to these burgeoning requirement and that also explains the lexicon that surrounds it i.e. concessions, PFI, delegated management etc. It is thus a problem-resolution mechanism. PPP pose an interesting challenge in its successful implementation i.e. Should PPP be viewed as an organizational structure or a strictly a contractual format?

Table 1 : Potential Advantages of Using PPP

Financial Advantages	Economic and Social Advantages	Political Advantages
Easing of budgetary constraints	Streamlined construction schedule and reliable project	A new role for the public authority
Optimal allocation and transfer of risk to the private sector	Modernization of the economy and improvement of services	Allocation and not "abdication"
Realistic evaluation and control of costs implementation	Access to financial markets, combined with the development of local financial markets	Project stability

2.9 The main reasons for adopting PPP can be summed as below[5]:

- Source of additional funding to meet the supply demand gap for funding of new infrastructure.
- Acceleration of infrastructure provisions by allowing a public authority to translate a upfront capital expenditure into flow of ongoing payments
- Faster implementation by assigning of singular responsibility for design, implementation and management and combining remuneration to provision of service.
- Reduced whole life cycle costs
- Better risk allocation
- Better incentive to perform
- Improved quality of service
- Moblisation of additional revenues from non traditional sources
- Enhanced public management

[5] from "Financing of major infrastructure and public service projects, Public Private Partnership" – Lessons from French Experience throughout the world, published by Presses de ENPC.

Table 1 lists the advantages of using PPP format for project implementation.

2.10 Adoption of PPP does attract criticism. At the face value, it does appear to be a costlier option for financing of public utility or service as compared to a public sector provider. The reasons put forth are:

- Since cost of private funding is higher, hence the overall project cost increases. On the other hand, sovereign borrowings are cheaper and hence should be the preferred mode of financing.
- Private partner unlike the Public sector provider is expected to earn a profit on its capital outlay.
- Transaction costs of entering a PPP are high both for private as well as public partner. This is so because of its nature and complexities involved in PPP.

2.11 In reality though, PPP projects, combining construction, operational and maintenance provisions, provides private sector with strong incentives to minimize the whole life cycle cost of the project. This concept is practically very difficult to adopt in traditional public sector financing as the funding is done on yearly budgeting basis and often without a clear lien on maintenance demands. This can be understood better by following the example of a traditional approach of procuring a road project and comparing it with the same road project implemented by granting a concession on it.

2.11.1 The traditional method used by the Public authorities for procuring construction and maintenance of a road is to let out contracts for separate tasks. For example, there is a design agent, a contractor and a maintenance agent. Although each party may perform its specified task efficiently, there is insufficient incentive for the parties involved to collaborate to maximise overall value for money for the Public authority, especially in terms of whole-life costs and quality. In this approach, public authority or agency responsible normally let out a construction contract that requires the contractor to build to the agency's design. (Though, it is also possible to let out design and build contracts which link these two functions.) Payments are made by the agency based on measured progress in construction. Fixed rates are agreed to on the basis of detailed specifications. However, the assumptions on which the

contractors give fixed rates often lead to numerous claims. Once a contract is let and the contractor is on site, claims can be (and are normally) made against the agency for additional costs. For example, claims would be made for unforeseen ground conditions, necessary variations to the works for carriageway and structures or measurement variations. This often results in time overruns and additional unbudgeted costs for the agency. Such increases are often substantial. In Britain, a National Audit Office report stated an average increase of 28%, between tender and out-turn price, based on a sample of 42 road construction contracts each worth over £0.5 million (although a proportion of the cost increase quoted resulted from the required changes).

2.11.2 On the other hand, by giving out a concession for a road project, whereby the project road is designed, maintained and operated safely and satisfactorily by the private partner, has certain built in (endogenous) advantages. Since the private sector responsibility is for designing, constructing, financing and operating the road, the private sector has to consider its obligations as a whole, over the full life of the contract, taking full account of the risks inherent at each stage of the project. This is so because there is a direct relationship between the way a scheme is designed and constructed and its whole-life operational costs. This is made possible by innovation in technical and operational matters. Private sector strives for innovations in financial and commercial arrangements as well. The private sector chooses how to provide the service to the level specified by the agency at least cost to it. The allocation of project risk to the private sector, which it is capable of managing, leads to an efficient service and a lower whole-life cost for the agency.[6] In this arrangement, there are very few circumstances in which the agency's liabilities under this agreement, agreed at the outset, can be increased.

2.12 The government's lower cost of capital, cited as a reason for not opting for PPP, reflects its ability to resort to taxation to repay its debts, not the inherently lower

[6] In a review conducted by National Audit Board of Design Build Finance Operate Contracts in UK, an average saving of 15% has been reported (as compared to Public comparator cost of the same projects over their entire life cycle).

economic costs of government-funded projects. In addition, civil servants often have less incentive to invest profitably than private project managers do. The choice of projects and accordingly the investments of public money are sometimes dictated by political reasons rather than on sound economics.

2.13 It is a fact that transaction cost in PPP is higher, but one of the reasons is the inadequacy of the institutional frameworks responsible for entering into PPP contract. Hence, these higher costs cannot be solely attributed to the processes associated with PPP procurement.

Types of PPP

2.14 PPP is a dynamic model and can best be defined in a generic manner. First, there is no unique model and, second, the choice is limitless in terms of financial and legal forms. Each project has its own requirements; hence, there is a corresponding need to uniquely structure a PPP format for it. Further, PPP being a relatively new approach to infrastructure development, a standardized nomenclature to describe all such partnerships does not exist. Various names have been assigned to it including Private Finance Initiative, Concessions, and Delegated Managements. Many terms are often used interchangeable e.g. Turnkey and Build Operate and Transfer projects. Some are used loosely to define fundamentally different situations. For example, BOT is sometimes used to describe procurements that involve private financing as well as those which do not.

2.15 While theoretically, it may be possible to have limitless variants of PPP because of varying permutations of legal and financial structures, it is possible to classify these based on the nature and extent of risk transfer from the Pubic sector to the Private sector. This classification divides PPP into:

- **Management Contracts with Incentive Payments**: Also called Performance based Contracts. Since the remuneration to private partner for goods or services provided is based on it's operating performance, part of the operating risk of the project is transferred from the Public sector on to Private sector.

However, the Public sector is not fully insulated as long as its financial returns are dependent on the private partners operating profits;

- **Leases:** The public sector is fully responsible for all the project investments i.e. it bears the full investment risk. However, the entire operating risk is transferred to the private player. Public sector does not pay any fee to the private player (on contrary, it may receive some) and private partner's profits are solely dependent on its own operating profits;
- **Design Build Finance Operate (DBFO)** or **BOT or Rehabilitate operate Transfer (ROT)** are such in which the operating and investment risks are substantially transferred to the private partner as it is required to make investments as well.
- **Divestitures** are the arrangement in which a private consortium buys an equity stake in a state-owned enterprise. The private stake may or may not imply private management of the company. However, it is associated with private management of the enterprise.

2.16 To confirm the point made earlier about there being only generic models not a precise one, it may be so that a contract called *concession* may resemble one called a *management contract* in its incentive effect if its contractual clauses effectively guarantee the concessionaire revenue and compensate it for cost increases. Similarly, a divestiture requiring a license to operate, ends up being quite identical to a fixed term lease contract.

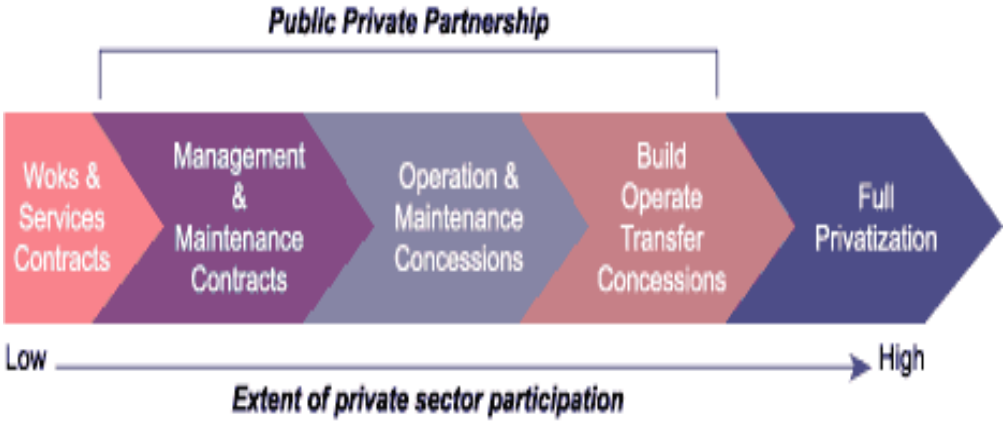
This extent of private sector participation and various PPP structures defined by this balance are depicted in figure 1.

Principles of PPP in Road Sector

2.17 Typically in a PPP in road sector, a government grants a concession for a pre-determined time period to a consortium/ firm to build, operate and manage a project. Such projects are commonly known in the English speaking world as "Build - Operate - Transfer (BOT) projects". In continental Europe, such projects

are called "Concessions". [7] The consortium recoups its investment costs and profit through charges or tolls (user fees) or payments from the government directly. At the end of the concession period, the project is usually transferred to the government at such a state and conditions as stipulated in a predetermined contract agreement.

Figure 1: Types of PPP[8]



2.18 Although the term Build - Operate - Transfer is relatively new, the practice of permitting private concerns to develop and operate infrastructure projects has been around for several years. In France, the king awarded concessions for roads and bridges, in which the concessionaires collected tolls for maintaining such routes. Canals were also built up in France in early seventeenth century under concessions. In Mexico & USA, the history of rail is replete with PPP. The extent of private activity in road sectors in developing countries during 1990-2003 is shown in Figure 2 & 3. It may be seen that after an initial rush that culminated towards end of nineties, a more sober and pragmatic approach is being followed.

[7] Hereafter, the term BOT has been used interchangeably with various other PPP formats prevailing in road sector. It has been done for the sake of convenience in addressing the contextual issues rather than being a admission of similarity of such formats.
[8] **Source World Bank Tool kit for Highways**

2.19 The government establishes the major objective of a particular project and thereafter assumes the role of defender of the public interest. It allows a private company or consortium to design, finance, construct and operate a particular project for a certain concession period. The concessionaire assumes the responsibility for the completeness of design, any risk associated with construction and the control of the operational costs. However, during the entire project cycle, there is a continuous but changing role between the government and private partner. There are four distinct stages in the typical life cycle of a major PPP road Project, These stages are defined as follows:

- The *development phase* is the most speculative stage. In this phase, engineering, financial, and environmental feasibility analyses are conducted and necessary government approvals are secured as pre-conditions to construction.
- The *construction phase* depends on the performance of the developer to complete the project on time and within budget, but is also subject to non-commercial risks, such as litigation and force majeure.
- After the project is complete, there is typically a *ramp-up phase*, during which the revenue stream is established. Transportation projects are often subject to competing alternatives, and it is difficult to forecast demand accurately in the early years of operation.
- During the final phase, *project maturity*, the project must generate sufficient revenues over the long-term to cover its operating expenses and to amortize its capital costs. For large, capital-intensive projects, a period of 30 years or longer is often required to fully recover the initial investment.

Figure 2- Investment in road projects with private participation in developing and transition countries by project type, 1990-2003 (US $ million)[9]

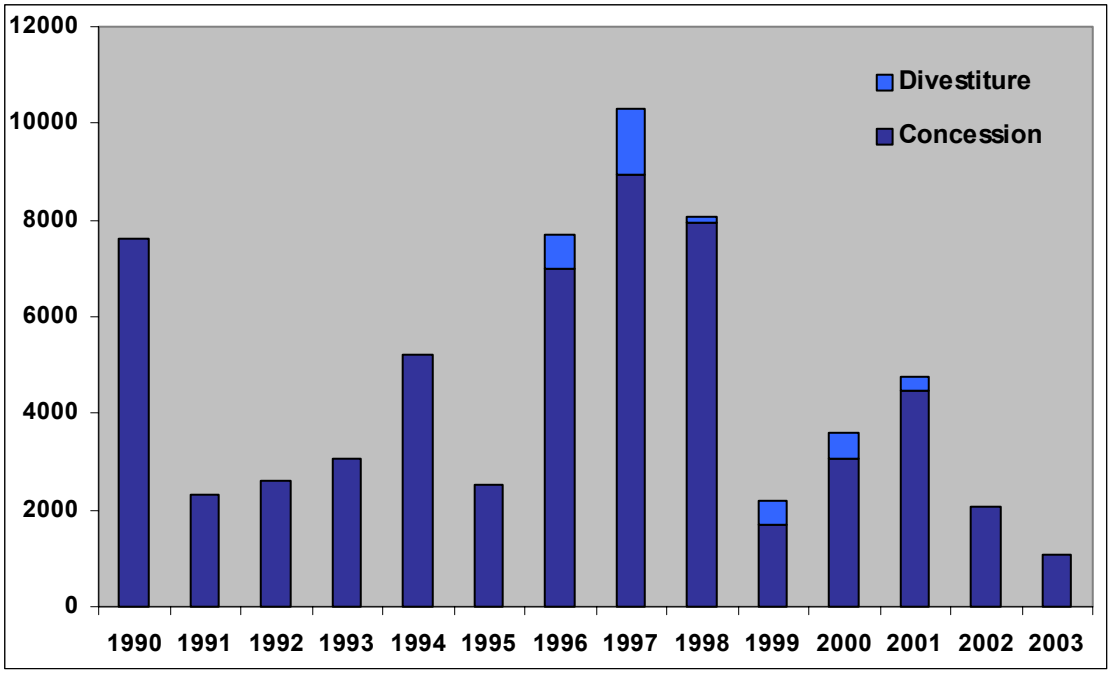
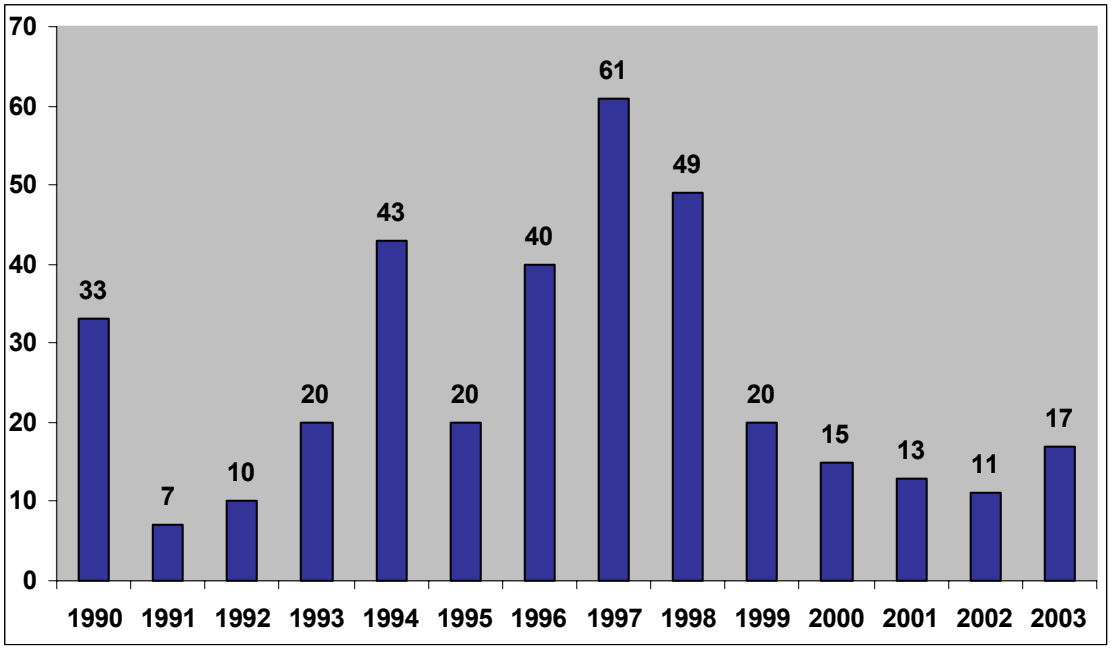


Figure 3- Road projects with private participation in developing and transition countries that reached financial closure, 1990-2003



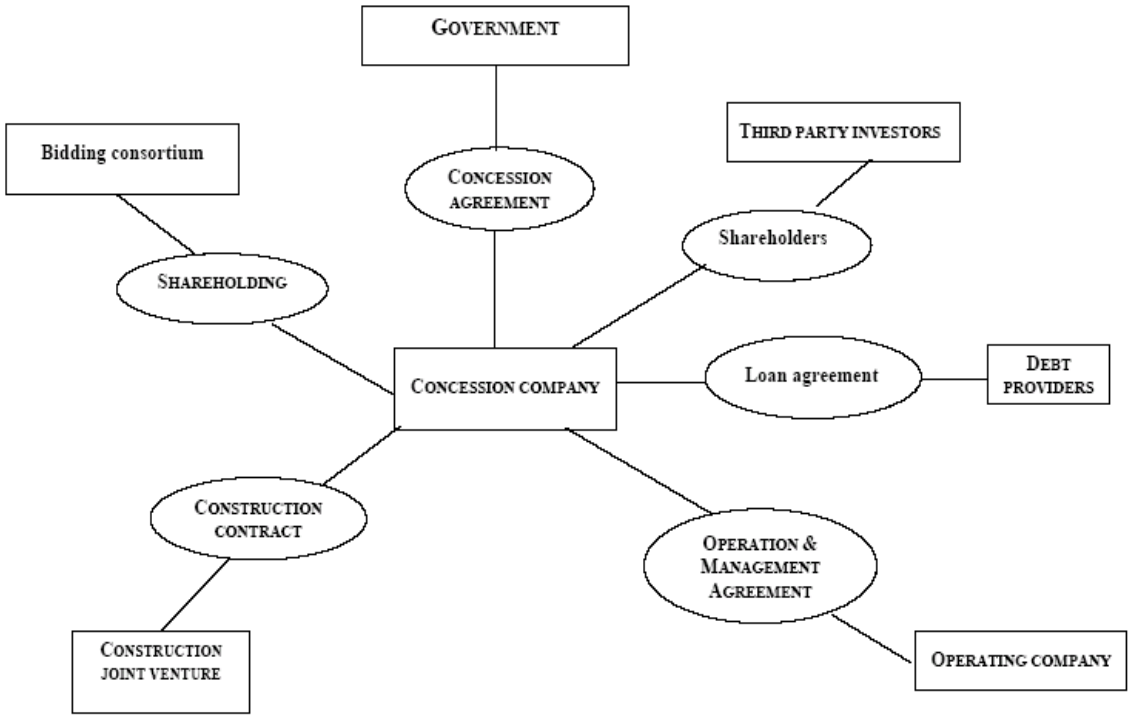
[9] Data source for figure 2 & 3: Private Participation in Infrastructure database web site: http://ppi.worldbank.org

2.20 The basic principle that makes PPP projects work is that of a "Bankable franchise". In other words if a facility has the potential to cover both its capital and operating costs plus a reasonable and market competitive rate of return for investors, then private players can negotiate an acceptable long term franchise agreement and finance it through private means. The basic principles of a PPP project can thus be outlined as below:

- In a PPP project, a government grants a concession for a period of time to a private consortium/firm for the development of a project. This concession may be handed out after following a competitive bidding or negotiations or both. The consortium then builds, operates and manages the project for a number of years after its completion and recoups its construction costs and makes a profit out of the proceeds coming from the operation and commercial exploitation of the project after which the project is transferred to the government.
- The government does not typically guarantee the repayments of any loans or returns on the investments made on the project. Instead the repayments and returns on the investment depend on the revenue generated by the project.
- Since direct fund from the public budget are not required, the government is able to reduce pressure on public borrowing, while allowing the transfer of certain risks to the private sector. Furthermore, since the project is built and then operated by the consortium during concession period the government gains benefit of private sector expertise and efficiency in these areas.
- The government may, on occasion, furnish portion or all of the land required for the project or possibly grant partial tax relief in some form or the other. Many BOT projects are however, structured without any financial or other form of assistance. However, in developing countries, Investors are often unable to secure financing for large infrastructure projects unless there is significant level (up to 40%) of 'government equity', grants or subsidies or subventions to make the project financially viable and to ensure political commitment.

- Among the main characteristics of BOT project is that the respective government does not provide guarantees for the loans for the financing of the project and this necessitates non-traditional distribution of risks between a high number of contractually interrelated parties. A typical relationship of different players in PPP contract is shown in the figure 4.This multiplicity of parties and their interrelated contractual relationships give rise to complex and time consuming negotiations.
- Most BOT infrastructure projects are funded by project financing methods, which may be categorized as non-recourse, limited or full recourse. A pure project financing provides no recourse. This means that if project revenues are insufficient to cover debt service, lenders have no claim against the project sponsors beyond the assets of the project. The term 'project finance' generally refers to the arrangement of debt and equity for the construction of a specific revenue generating facility in a capital-intensive venture.

Figure 4: Relationship of Numerous Players in a Typical PPP Project



Contracts or Concession Agreements used in PPP

2.21 A concession is a system by which a public authority grants specific rights to an organization (private or semi-public) to construct, overhaul, maintain and operate an infrastructure for a given time. This corresponds therefore to a contract, under the terms of which a public authority charges a company with making the investments required to create the service at its costs, and to operate the service at its own risk, the company being remunerated in the form of a price paid by the users of service and/or public authority.

2.22 Concessions intrinsically have two criteria linked to it. These are:

- **Requirement of transfer of risks** from the public authority to private company (it also defines the nature of PPP involved), and
- **Global jurisdiction of contract**. The operation of the infrastructure is fully included contractual obligations and remuneration is directly linked to it.

This is in marked difference to a work contract of the kind the Public Works Authorities traditionally enters into. Concession includes a part relating to operation of infrastructure, being intimately linked to remuneration. Whereas the Work Contract merely concerns a construction task, a concession contract involves both responsibilities for a construction programme, and long-term service. The principal differences between a concession and a work contract are listed in table 2.

2.23 The principle feature of such contracts is the long-term duration[10]. Very often the conditions assumed at the time of original agreement vary beyond the limits defined in such document. In addition, it is not possible to foresee every eventuality and provide for a pre-decided solution in the agreement. Therefore, renegotiating of agreements at a latter date to set right the balance in an equitable manner is a key requirement. Not only this lends flexibility of execution but is essential for overall cost optimisation of the project. This is in marked difference to work contracts and is intrinsically linked to overall success of a PPP programme.

[10] In France, the tenure of new concessions can vary from 50 years up to 70 years.

Table 2: Differences between a Concession and Work Contract[11]

CONCESSION	WORK CONTRACT
Multiple purpose: responsibility for construction programme and provision of long term service	Single Objective: Construction
Duration: Long (mean = 30 years)	Duration: Short typically 1 years
Funding: Concession company	Funding: no interim funding, co funding or funding of infrastructure by contractor
Concession company investment	No investment by contractor
Long term occupation of public domain	No long term occupation of public domain
Some freedom concerning design of infrastructure	No freedom (or only limited freedom) in design of infrastructure

Role of public and private partners in PPP

Is PPP an alternate organizational approach or a contractual format?

2.24 As the words suggest, PPP is essentially a partnership. Traditionally, the public sector and private sector had somewhat of adversarial roles to play in which public sector held an upper hand. Public authorities were at helm of affairs and took judgments on outturn of events based on what is termed as **"***Public Interest"*. The private sector carried out what was specifically asked by the public sector without any adding additional value to it.

2.25 The stated objective of all public authorities is to watch public interest. This term is however difficult to define in a quantitative way. In order to carry out this function without being subject to any disruption by extraneous factors, long and well-documented procedures are evolved. In such procedures, the entire scenario of events is thought out. The entire process is directed at producing some result as an outcome not as a goal, that is the global approach is *process-*

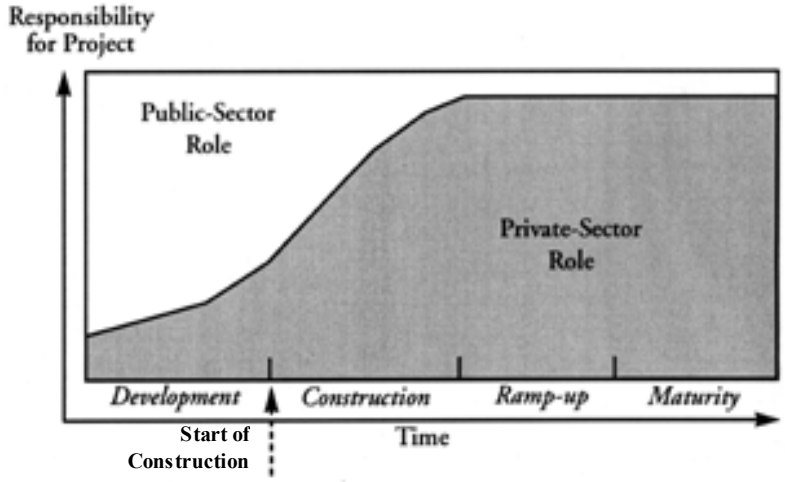
[11] Sources: SNBATI report- summary of prime contractor forum: Global Construction contracts in Europe, 1997, Analysis of Highway Concessions in Europe- 1999

oriented. Though, the real import of the exercise undertaken to safeguard the public interest often ends up getting somewhat lost. However, Public sector works well once the processes are established and precedents are available.

On the other hand, the private sector has always been guided by objectives that are more easily measured quantitatively (profits, sales etc). Private sector has *goal-oriented approach*. In fact, the accounting procedures of public sector and private sector (Annual budget estimates and expenditures vs. P& L statements, balance sheets) are a clear indicator of the underlying principles of two different thoughts.

2.26 The private sector is generally associated with the sole aim of garnering profits. It is well known that in order to improve their bottom line, it tries to "sell" at a higher price while delivering the optimal. The spectacular bankruptcies of energy giant Enron and telecom bigwig WorldCom only corroborates the idea that self-regulation in private sector does not always work and is costly to investors and lenders alike, and damaging to the overall economy.

Figure 5: Role of Public & Private Partner during a life cycle of PPP Project



2.27 The pace at which two sectors work is different. Private sector likes to fix the problem so that downstream activities go unchecked whereas in public sector problem itself becomes the issue. Public sector deals with more abstract notion of public good and is correspondingly slower while private sector deals with

quantitative parameters and hence is quicker in its responses. In public sector, the legislation sometimes puts impediments in quicker response (e.g. having publicity requirements receiving tenders for a work. PPP as an idea assumes a perfect equilibrium between two partners. However, It requires the will of both to make it work by matching the pace and rhythm to each other's comfort.

2.28 The PPP arrangements can be viewed from another perspective. Figure 5 suggests that there are appropriate roles or levels of involvement for governmental and private-sector parties *in varying degrees* over the life cycle of a project, from development and construction to ramp-up and maturity. The key event triggering the shift of balance of public & private sector responsibility is the start of construction. Two parties assume varying degrees of responsibility at different stages of the project's life cycle: It is principally the role of the public sector to deliver up-front a "buildable" project (i.e., one that has obtained the requisite public approvals). Once the project has been advanced to a buildable stage, the risks are more of a business nature, and it are suitable for private sector partner own up and deliver the project. These varying responsibilities also define the relationships of two partners.

2.29 In PPP, both parties have certain advantages relative to other in performance of different tasks. Therefore, effort should be to allow what each sector does the best so as to provide the infrastructure in a most economic manner. The overall aim should be to structure such a relationship between two parties (using the cliché) where the risks are borne by those who are best able to control those.

2.30 As stated before, under PPP structure private partner becomes the long-term provider of services as well as upfront asset builder (a role played traditionally played by them). Private partner is vested with design, building, operating and maintenance of a public asset with full or sizable private funding. Public authorities on the other hand are relieved of direct management and delivery of services but have to focus closely on service planning, performance monitoring, and contract management. The main job of public authorities in a PPP structure is to ensure that contractual obligations are met in terms of both quality and time.

2.31 The rights and obligations of the partnership are usually carefully and clearly outlined in the concession agreement and a great reliance is placed on such a

document to safely and successfully guide the partnership. It is, though, very difficult to predict the entire set of events over the full period of the concession. Therefore there may be a need for renegotiation at a later date.

2.32 Hence, to view PPP purely as a contractual format may be taking a myopic view. It is new organization approach. There are no dogmas attached to it yet. It is in evolution phase and as more and more experience is gained, it is hoped that a clear set of principles shall emerge to make.

Requirements for a successful PPP programme

2.33 First and foremost, for successful launch of PPP, it is imperative that the chosen project should have real economic value i.e. it should combine the social utility (hence satisfy public partner) with the financial feasibility (mandatory for private player). Thereafter, while the public sector tries to maximize the socio economic benefits accruing out of the public sector investments, private sector tries to maximize its return on capital outlay. These objectives merge in so far as to see the project come to life, but diverge on the question of sharing the project-induced benefits. Therefore, the project selection is the first key to the door leading to the successful PPP. Such a project should be of sufficient size to enable the private sector to benefit from economies of scale, recover bid costs and make an acceptable return. The bankability of risk transfer proposals, expected length, complexity and cost of tendering process are other factors influencing the attractiveness of such a project.

2.34 There are certain essentials that have to be in place to enhance the private sector's interest in BOT infrastructure projects. These include the following:[12]

- An explicit Pro-active Development Policy committing government to PPP in infrastructure
- A credible legal and regulatory framework

[12] Source: UNIDO BOT guidelines. The underscored text is meant to link the scope of this Project Report with the PPP successful implementation.

- *A credible administrative framework* to expedite the implementation of BOT projects and to support such projects when they encounter the problems inherent in all large projects no matter how they are financed.
- *A clear government commitment to conclude the BOT deals in a reasonable time.*
- *An orderly and transparent BOT procurement process*
- Incentives in form of Government support to encourage PSP and a pragmatic approach to risk reward issues

2.35 The process of project development and implementation changes significantly when a project is undertaken as a PPP. While some of the existing processes are suitable for it, new ones have to put in place and some existing ones are required to be modified. Figure 6 gives out the Public Private Partnership Route map which gives the main stages for development and implementation of a PPP project.

2.35.1 The first key difference is at the project identification stage and option appraisal. This shall require an initial assessment of the suitability of a project for procurement as PPP, of the responsibility for taking the project through statutory processes, and the use of the selection procedures.

2.35.2 There are defined differences in the process for procurement for successful PPP as opposed to public procurement. The cornerstones in PPP procurement are Output Based Specifications and the Project Agreement.

2.35.3 Implementation of a Public Private Partnership will necessitate greater consultations with key project stakeholder such as local affected persons, road users, employees etc.

2.35.4 The Construction & Operation phase shall see a fairly different role for Public authorities, which shall act more in a regulatory capacity and will monitor the performance of the private partner for the duration of the contract. Therefore there shall be lesser roles in direct supervision and measurement of quantities during the construction stage.

2.35.5 The Post Project reviews shall also be modified. First such review shall be required once the asset is commissioned and further reviews shall be required during the operation phase as well.

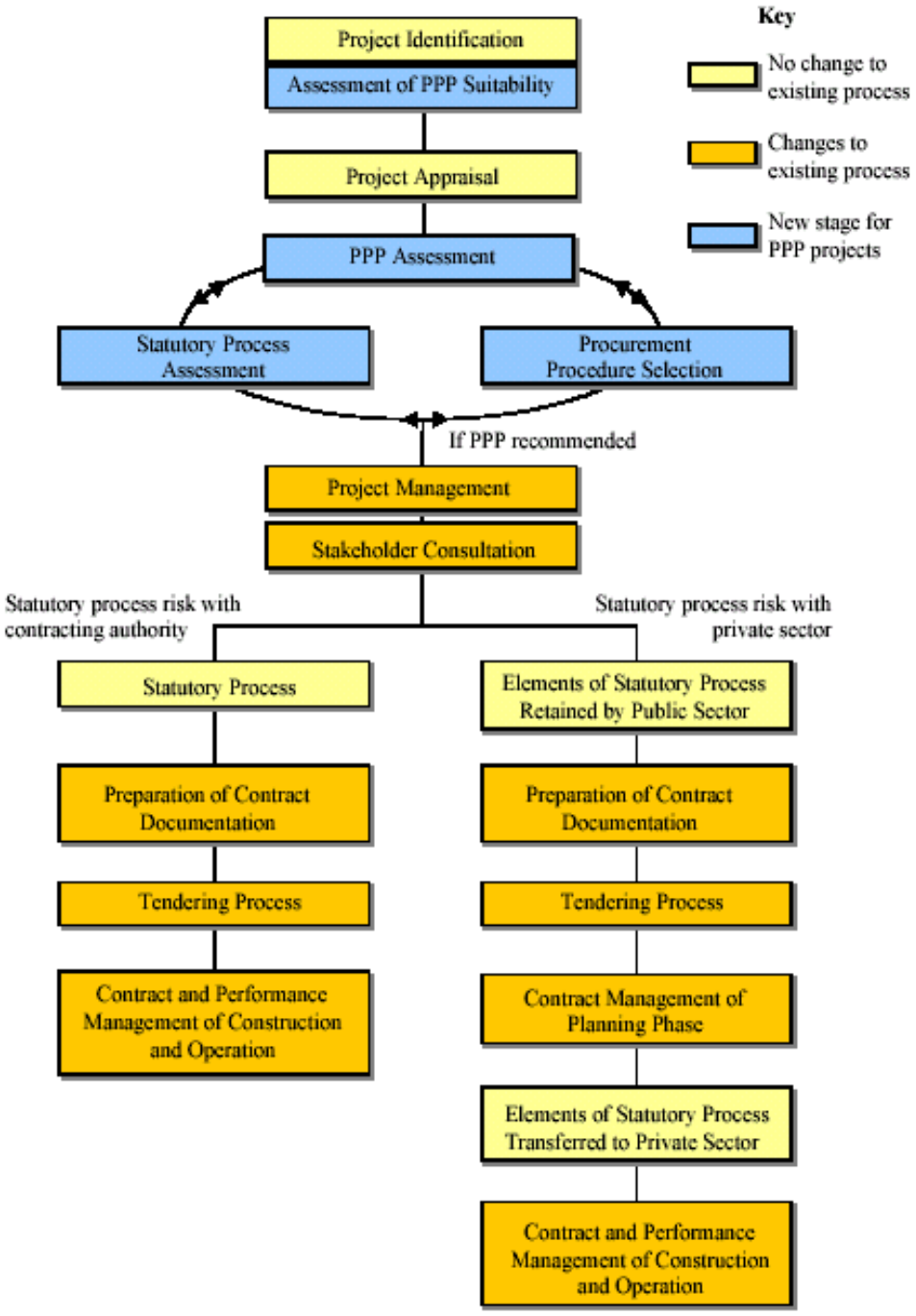
2.36 In developing countries, often the decision of attracting private sector finance into the transport infrastructure financing is taken to augment the dwindling budgetary resources and is more of a political reaction than a well-crafted policy decision. Some times, the required institutional and administrative frame works are lacking or they lack the capacity. The civil servants responsible are not fully equipped to accept the new challenges adequately. Due to novelty of ideas, it is difficult for them to understand the dynamics and consequential requirements of private sector financing. On the other hand, private entrepreneurs in transport and the project consultants (who often are paid in terms of success fees) are quite aggressive and driven. Driven by private sector guiding principles, they generally request that pure market rules or terms and conditions of equity placements and commercial loan should be applied to such projects, notwithstanding the special features of operation.

2.37 This situation gives rise to several issues impeding the optimum utilisation of PPP as a means of applying private finance in public infrastructure. Some such issues are:

- Inappropriate level of risk transfer (either too little or too much);
- Poorly defined procurement methodologies and lack of standardisation;
- Insufficient coordination between various government departments and agencies;
- Continued focus on input specifications rather than output specifications.

2.38 Thus, success of a PPP project will depend largely on bridging this gap in administrative framework. It shall also require the right procedures for choosing the private partner through a process, which underscores the socio economic value of the project while ensuring its commercial viability.

Figure 6: Public Private Route Partnership Map[13]



[13] Source: Introduction to Pubic Private Partnerships, Policy Guide Note 1, Government of Ireland

Indian Scenario

2.39 The National Highways Authority of India or NHAI was constituted by an act of Parliament, the National Highways Authority of India Act, 1988. It is responsible for the development, maintenance and management of National Highways entrusted to it and for the matters connected or incidental thereto. Its mandate includes encouraging the private sector in financing the construction, maintenance and operation of National Highways and wayside amenities.

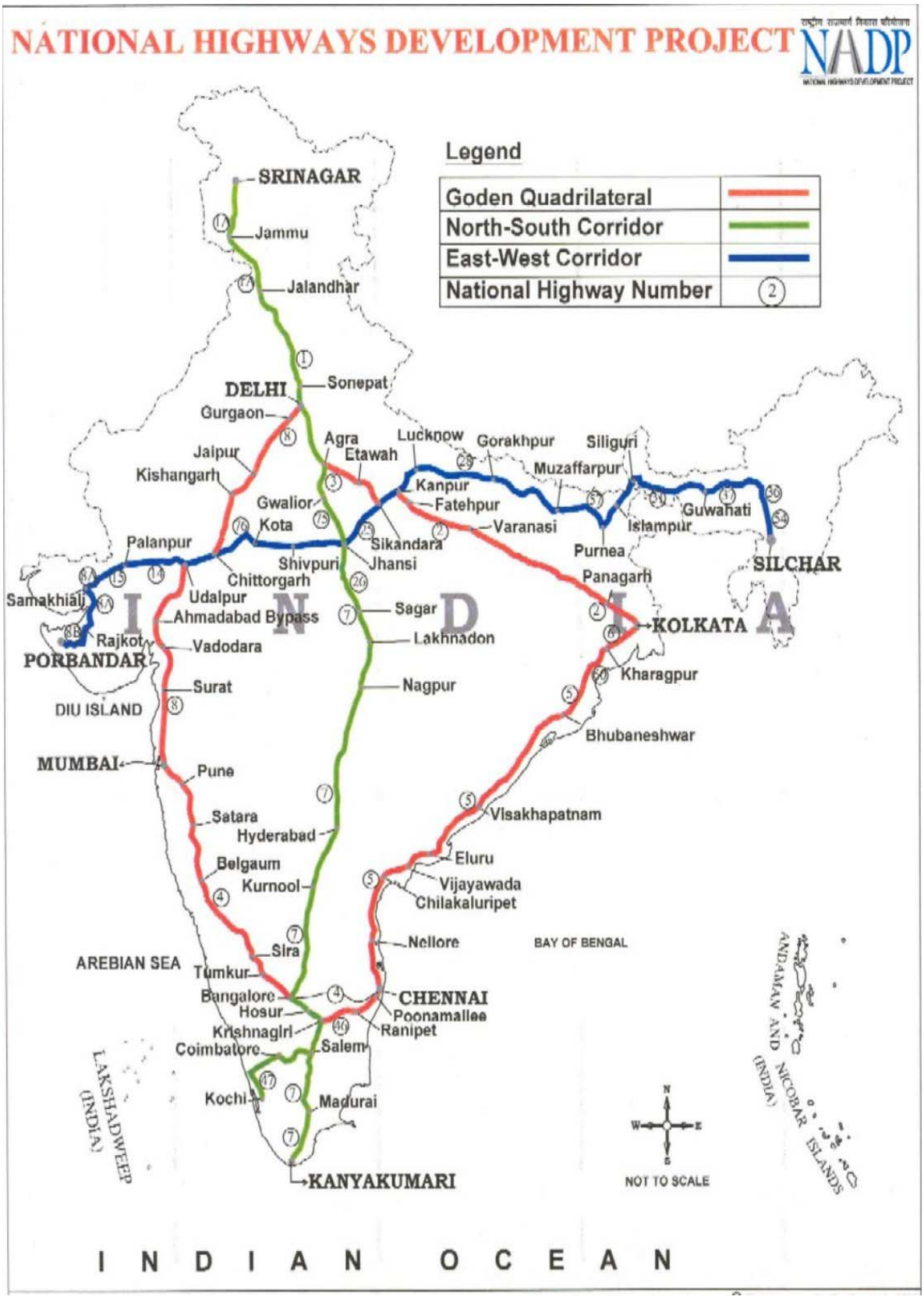
2.40 The Authority was operationalised in February 1995. NHAI is mandated to implement National Highways Development Project (NHDP), which is India's largest ever highways project (Project Cost US$ 13 Billion). It involves four/six laning of around 13,146 Km under NHDP (figure 7).

2.41 For implementation of NHDP, a host of funding options including loans from external multilateral agencies and private funding have been used. Table 3 gives the finance pattern of NHDP.

Table 3: Finance Pattern of NHDP in India

Total Cost	**Rs.58,000 Crore**	**US$ 12.6 Billion**
sources	***Rupee Crore.***	***US$ Billions***
Cess on Petrol and Diesel	20,000	4.35
External assistance	20,000	4.35
Market borrowings	12,000	2.60
Private Sector Participation	6,000	1.30

Figure 7: NHDP Project Map



2.42 There have been various policy initiatives taken by the Government of India to tap private sector finance. These are:

- Government carries out all preparatory work including land acquisition and utility removal. The land is provided to the concessionaire free of cost and the Right of Way (ROW) is made available free from all encumbrances.
- NHAI / GOI can provide capital grant up to 40% of project cost to enhance viability on a case-to-case basis. Ordinarily, NHAI is able to give capital grant of up to 25% to enhance project viability.
- NHAI is also permitted to participate in the equity of BOT projects up to 30% of the total equity.
- The concessioning company is given 100% tax exemption for 5 years and 30% relief for next 5 years, which may be availed of in anytime during 20 years.
- Concession period allowed up to 30 years
- Arbitration and Conciliation Act 1996, which is used to settle dispute, is based on UNICITRAL provisions.
- In BOT projects, entrepreneurs are allowed to collect and retain tolls
- Duty free import of specified modern high capacity equipment for highway construction is allowed.
- Housing and Real Estate development, which is an integral part of the highway projects, is treated as infrastructure and is entitled for same tax benefits.

2.43 In the NHDP, private sector funding accounted for 10% of overall project cost, but the important point to be noted is that this figure was revised upward by 50% from Rupee 4000 crore to Rupee 6000 crore. A summary of PPP contracts in NHDP is in the table 4. The average length of road PPP contract is approximately 45 kilometres with a project cost of Rupee 250 crore (US $ 55 million).

The complete list of such contracts and other details are at annex A.

Table 4: Summary of Private funded Projects in NHDP Project

BOT Toll Based	**No of contracts**	**Total Length kms**	**Project Cost Rs Crores**
4 Laned ROB at Kishangarh Durg Byepass	2	19	88
Under Implementation Vivekanand Bridge, Mahapura Kishangarh, Nalore Tada, Satara Kagal, Tumkur NeelaMangala, Delhi Gurgaon Access Controlled Highway, Nadigama Vijawada	7	435	3314
BOT Annuity Based			
Under Implementation Panagarh Palsit, Palsit Dankuni, Ankapalti-Tuni, Tuni Dharmavaram,Dharmavaram-Rajalmundry, Nellore Byepass,Maharastra Border –Belgaum, Tambaran-Tindivanam	8	476	2354
SPV			
Moradabad Byepass	1	18	104
Under Implementation Jaipur Byepass Phase II Ahemdabad-Vadodra Expressway Phase I & II, Port Connectivity to Momugua, Jawaharlal Port (Phase 1), Haldia Port, Vishakhapatnam Port	7	241	1364
Port connectivity to New Manglore, Cochin, Tutocorin, Chennai & Ennore, Paradeep,JNPT (Package 2)	6	194	800
Total	**31**	**1383**	**11338**

2.44 NHAI is now responsible for implementing on National Highways of length around 10,000 kilometres called Prime Minister Bharat Jodo Project (PMBJP). It is planned to implement bulk of Post-NHDP programme through Private Sector Participation (PSP). Another lot of approximately 600 kms is being finalized by NHAI for undertaking through PPP. The list of the BOT works being procured by NHAI is at Annex B.

Punjab Scenario

2.45 Punjab is located in the northwest of India and is one of its most progressive states. Its socio-economic indices are amongst the highest in the country. The chief mode of transportation and freight movement in Punjab is road network (of approximately 52000 kilometres long). Except for National Highways network (approx 1600 kilometres) in the state (whose control is split almost halfway between State Public Works Department or PWD and NHAI), the remaining network is looked after by Public Works Department (PWD) or sister organisations using the state's own resources. The trend over the past few years is though to bring the National Highway network under the umbrella of NHAI, though it is being done through a project-implementation-approach.

2.46 In Punjab, Punjab Infrastructure Development Board (PIDB) was set up under the Punjab Infrastructure Development Act, 1998 (Punjab Act No. 1 of 1999) with an express aim of improving the overall quality of infrastructure in the state. However, the Act was repealed in 2002 by enacting the Punjab Infrastructure (Development & Regulation) Act, 2002 (PIA).The new Act was passed *to facilitate and attract private participation* in infrastructure development in the State by having defined structure and procedures for this purpose. Two statutory bodies have been set up under this Act:

- ***Punjab Infrastructure Regulatory Authority (PIRA)*** is an authority with functions of formulating appropriate facilities & guidelines in regard to tariffs, private participation in infrastructure projects, laying down standards of performances etc. and adjudication of disputes between the participating parties;
- ***Punjab Infrastructure Development Board (PIDB)*** which replaces the one established in 1998 with similar name.

2.47 PIDB has been mandated to act as an apex body in the State for overall planning for development of infrastructure sector & projects. One of the specific objectives of the Board is *"to develop infrastructure in the State of Punjab and infrastructure facilities in the country having direct benefit to the economy of the State of*

Punjab in transportation, roadways, including roads which may be national highways, state highways, major district roads (plan roads), other district roads, and village roads, express ways, by-passes, bridges, interchanges, roads over and under bridges, road transport system and water transportation.

2.48 For financing projects, PIDB has a continuous revenue stream in the shape of cess, which is imposed on the sale of petrol (@ Rupee 1 per litre) in the state of Punjab. For PIDB, it yields approximately Rupee 140 crore per annum (Approximately US$ 30.43 million). PIDB has been instrumental in launching one BOT project so far. The project relates to the construction, maintenance & operation of Bus Terminal in the city of Amritsar, the holy city of Sikhs. The project cost was Rupee 12 crore (US $ 2.6 million approximately).

2.49 **Punjab Roads & Bridges Development Board (PRBDB)**, another statutory body of the Punjab Government has also been given a mandate to give out concessions on the road sector alone. This board was set up in 1998 and has similar organisational structure as PIDB. The principal difference being that the administrative department concerned with PIDB is Finance Department while for PRBDB, it is the Public Works Department (Building & Roads branch).

2.50 Both these bodies are working jointly to seek private sector privatisation in highway sector in Punjab. A list of road works being proposed for this purpose by both the entities is at Annex C. The overall project cost is about Rupee ten billion (approximately US $ 220 million). This project is still in early stages. Most of the issues relating to this program are being decided. For example, the tolling policy, tariff structures and future increases in tariff were notified in July, 2004. Similarly, the model concession agreement is being finalized for adoption in the proposed concession program.

The author is actively associated with this program.

III STRUCTURE OF TASK TEAM FOR PPP

3.1 The interface between the government and the private sector is one of the important keys to success of private infrastructure arrangements. The Government has to perform numerous tasks when planning, designing, implementing and regulating concessions. The success of a concession depends not only on the details of a contract agreement but also on the adequacy of broader legal and institutional environment. Inefficient and poorly equipped (often former being the direct outcome of latter) can result in substantial cost to the government, developers and ultimately to users.

3.2 Generally, it is seen that the Governments especially in developing countries faced with severe and, often, lasting budgetary constraints take the decision of attracting private sector finance into the transport infrastructure financing to augment the dwindling budgetary resources. Though other reasons, those being better efficiency at operational level and better allocation of resources are also important, yet, thematically those are treated as incidental.

3.3 It is usual for governments to work out an ad-hoc arrangement whereby certain set of public servants, previously engaged in the same sector are simply asked to take over and man the process associated with Private Sector Participation (PSP). The civil servants manning the process are generally ignorant of the actual conditions of impacts of such substitutions of public financing with private capital under project financing scheme. There is a lack of experience in identifying, evaluating and marketing commercially viable projects, a lack of understanding of complexities of PPP, inadequate knowledge of risk allocations, limited ability to assess the value and impact of concessions being sought and offered or requested by the private sector: and limited capability to negotiate PPPs for infrastructure development projects. Additionally, a PSP programme in roads requires multi-sectoral coordination within the Government itself. And Governments across the globe are not very well known for such intra-governmental coordination. In the field of regulation, there is lack of experience in performing regulatory functions. Also, Project managers in the public sector are underpaid in comparison with their private-sector counterparts, and public

agencies have difficulty in attracting and keeping the best and brightest. The situation is further aggravated by insufficient resources being made available to public bodies responsible for performing the assigned tasks.

3.4 Mexican Toll Road Programme (1989-1994) offers a very good example of dangers associated with such situations. In this programme, 53 concessions were awarded for around 5,500 kilometres of road.[14] The estimated cost of this massive programme was US $ 13 billion with principal source of funds being domestic commercial banks (52%), concessionaire equity (29%) and federal and state government equity (19%). The program was virtually brought to a standstill in 1994 because of project level factors compounded by Mexican currency crisis of December 1994. Some of the other contributory factors were identified as lack of network and inter-modal planning by the authorities, understaffing and *limited institutional capacity* at the secretariat, lack of due diligence by government commercial banks, massive cost overruns, inadequate traffic demand studies and marketing, over dependence on foreign financial markets. The aim of listing all such reasons is to focus on the complex range of factors that come into play for making or breaking a PPP programme and the corresponding need on the government part of not only understanding these issues but to react in a proactive manner.

3.5 In securing the PSP especially through concessions, the responsibilities are high and stakes are heavy for both the Government as well as private promoters. Thus, there is an urgent need for having a efficient and responsive structure on the Government side to manage the process of design and award of concessions which can act as unique point of interaction with private partner. In this report, the term "Task Team" has been used for such an organization or unit.

Management approach to Task Team

Mechanistic vs. Organic

3.6 Attracting private sector finance and to optimise its socio economic benefits is an important and, simultaneously, complex task which is the responsibility of the

[14] World Bank, Public Policy for Private Sector, Note No 125, September 1997

government. Such a task dictates creation of a dedicated organization or team in government. A team can be defined as two or more employees who are organizationally empowered to establish their objectives, to make decisions about how to achieve those objectives, to undertake the tasks required to meet them, and to be individually and mutually accountable for their results. Such a team can have two different organization structures. First is a mechanistic structure and the other being an organic structure.

3.7 This issue is best understood by taking a broad look at the principles of government functioning. A mechanistic structure model of an organization characterizes governments. In Classical Management Theory, it is termed as bureaucratic management. Bureaucratic management relies on a rational set of structuring guidelines, such as rules and procedures, hierarchy, and a clear division of labour. Bureaucracies are founded on legal or rational authority, which is based on law, procedures, rules, and so on. Positional authority of a superior over a subordinate stems from legal authority. Efficiency in bureaucracies comes from: (1) clearly defined and specialized functions; (2) use of legal authority; (3) hierarchical form; (4) written rules and procedures; (5) technically trained bureaucrats; (6) appointment to positions based on technical expertise; (7) promotions based on competence; (8) clearly defined career paths.

3.8 As a result, government organizations are tall consisting of hierarchies with many levels of management. In a tall structure, people become relatively confined to their own area of specialization. Consequently, such organisations are somewhat rigid in that they consist of very clearly delineated jobs, have a well-defined hierarchical structure, and rely heavily on the formal chain of command for control (top-down or command-and-control approach).

3.9 On the other hand, the organic structure is more flexible, more adaptable to a participative form of management, and less concerned with a clearly defined structure. The organic organizations are open to the environment in order to capitalize upon new opportunities. Organic organizations have a flat structure with only one or two levels of management. Flat organizations emphasize a

decentralized approach to management that encourages high employee involvement in decisions. The purpose of this structure is to create independent small units that can rapidly respond to user needs or changes in the environment.

3.10 Organically structured Teams are emerging as the chosen strategy by the governments while handling privately financed projects. This structure best serves the needs of the new business model of PPP. It is though an open question whether such a Team should have an independent existence or whether it should be part of another organization. In the latter case, such teams are often given sizable functional freedom to meet its tasks efficiently.

Level of Decentralisation in Government

3.11 The other issue about the structure of the task team is its relation to the level of decentralization that the government undertakes in order to bring in PSP. There are again two approaches to this:

- Vertical decentralization: In this format the authority to grant concession is transferred to local governments or organizations,
- Horizontal decentralization meaning that concession programme is dispersed within one level of government.

To illustrate the point, if the responsibilities of concession in transport, water or electricity are granted and dealt by respective sector departments, it would be deemed as horizontal decentralization. This is as opposed to a system where a single entity within a single tier of Government is assigned the administration of all concessions in transport, water, and electricity (Horizontal Centralization).

3.12 The Governments use different permutations of horizontal and vertical decentralizations i.e. one can have vertical decentralisation and horizontal centralization as is done in Brazil. Some functions related to concession are vertically decentralized, while at the centre a single unit keeps tab on all concessions. On the other side, it is possible to have an institutional framework

which is vertically centralised but horizontally decentralized. Prime example is New Zealand, where central government has the key responsibility for concessions, but sectoral departments have the lead (horizontal decentralisation). There is no universally good or bad way of organizing the decentralization. There is eventually a trade off between the two approaches. The level of decentralization is a policy decision on the part of a government and each government has to figure out its own solution.

Table 5 & 6 depict such trade-offs between different approaches.[15]

Table 5: Trade-offs in Vertical Decentralization

Criterion	Centralized Approach	Decentralized Approach
Provides flexibility to adapt to local conditions, priorities, and preferences	-	+
Promotes consistent policies	+	-
Promotes experimentation with different approaches	-	+
Favours learning between jurisdictions	+	-
Helps the development of expertise that is specific to local conditions	-	+
Uses economies of scale to deal with the problem of constrained capacities	+	-
Provides decision-makers with better information	-	+
Enables decision-makers to take into account the effect of local policies on other jurisdictions	+	-
Promotes the accountability of Decision makers	-	+
Facilitates the consideration of how decisions regarding concessions can affect trade between jurisdictions such as standards, subsidies)	+	-

[15] Source: World Bank Technical Paper 39; Concessions for Infrastructure

Table 6: Trade – offs in horizontal decentralization

Criterion	Centralized approach	Decentralized approach
Enables a focus on sectoral specifics	-	+
Promotes consistent policies across sectors (that is, reduces the risk of distortions arising from inconsistent approaches to common issues)	+	-
Promotes experimentation with different approaches	-	+
Favours learning among sectors	+	-
Helps the development of sector-specific expertise	-	+
Uses economies of scale to deal with the problem of constrained capacities	+	-
Minimizes the impact of sectoral politics	-	+
Improves resistance to improper influences from particular industries or political authorities	+	-
Decreases the opportunity to inappropriately apply precedents from one sector to other sectors	-	+
Improves the ability to deal with blurring industry boundaries	+	-

Requirements of a Task Team

3.13 In order to define the structure of the Task Team, it will be worthwhile to list the functions expected from such a Team. These functions can be clubbed into three broad categories:

- **Planning and Policy functions:** Overall sectoral policy and financing, checking the adequacy of legal framework, coordination of relevant government policies, clarification of role and responsibilities with respect of

private investors, project selection in context of overall transport policy of government, risk allocation, establishment of procedures, defining various criterion for selection of concessionaires, requirement and form of government support in terms of financing etc

- **Project Management Functions:** These relate to carrying out the planning and policy functions on the ground. These include preparation of business case, project marketing, running the procurement procedures leading up to award, including negotiations, securing statutory clearances etc
- **Contract Management Functions:** These functions relate specifically to implementing the physical works and overall objective is to ensure at site the actual delivery of a service as dictated by contractual obligations and subsequently contract management functions like performance monitoring. These may relate to land acquisition, securing various permissions and licenses for project, payments to private partner, managing toll levels, toll structures, managing changes in contract, managing *force majeure* defaults, terminations, compensations, consents, taxes, dispute resolutions, waivers etc. This responsibility also includes maintenance of records.

3.14 Taking another approach, which is not global and relates to a specific road project, these functions can be summarized as

- Project Development
    - Project Prioritisation and approvals
    - Setting the timetable
    - Land Acquisition & associated resettlement
    - Site clearances (Especially in Indian context, where the Right of way is jointly occupied by various utilities like Telecom, electricity, sewerage etc and Forest Department)
    - Permissions and licenses necessary for construction
    - Risk allocations
    - Requirements and form of Government Support in terms of financing, guarantees and other incentives
    - Establishing procedures for providing government support

- Marketing of the project to potential bidders
- The bidding process leading to contract award and negotiation of concession agreement
    - Setting of bidding criterion
    - Prequalification of bidders
    - Evaluation of proposals
    - Award of contract
- Project implementation and monitoring
- Releasing the information for the Public and the user

3.15 The PSP requires close coordination between several governmental agencies. Besides the Transport Ministry or Public Works Ministry, Finance Ministry usually has close interest in the public revenue or liability implications; environmental authorities may have an interest. Similar coordination is also required between the federal, provincial governments and local authorities.

3.16 What emerges out of the works that are expected of a task team, is a requirement of a blend of administrative, engineering, financial, legal and public relation skills. Generally speaking, a team entrusted with bringing in PSP in transport sector will need to have more managers, more staff with financial backgrounds, and more engineers with experience in contract management, contract law, and arbitration procedures. Broadly, following type of expertise is required:

3.16.1 **Legal expertise**

Procurement procedures and contracts for PPP have to be clearly and comprehensively drafted in a way that brings out the forms of relationship between public and private parties, define precisely risk allocation matrix between the involved players and set unambiguous performance standards. Other legal skills typically concern concession laws, procurement, dispute resolution, foreign ownership regulation, tax systems, land ownership and expropriation, etc.

3.16.2 **Financial expertise**

PPPs involve private financing and in particular Project Finance schemes. Hence, these require very specialized skills like financial modelling, debt structuring, financial instruments for currency risk management, etc. Not only these skill are required at the time of evaluation of bids to make the right choice, but also, at a later date when renegotiations take place (As complete consideration of all possibilities upfront is too cumbersome and costly, contracts are unlikely to cover all contingencies).

3.16.3 **Technical expertise**

Even though the PPP projects do not require any new technical skills other than those required in traditional public sector-managed projects, these require a new approach taking into account the new roles since the new contract resembles more closely a “marriage contract”. Initially, technical expertise is required to evaluate the project proposal to check it for adherence to the project requirements. The definition of private sector work and its corresponding remuneration is dependent on performance indicators as defined in the concession agreement. One of the key functions of technical team is to see that performance indicators get clearly spelt out in the agreement and are easily monitored subsequently.

3.16.4 **Contract management, supervision and regulation** (including monitoring user satisfaction)

The government needs to ensure that contract is managed well and finally closes and all stated objectives are respected. The road authorities shall have to make sure that the private sector does not abuse its natural monopoly by fixing too high prices (e.g. tolls) and that the concessionaire continually meets the performance standards. Objectives should also be made to match users’ expectations. User participation is of the utmost importance, as they are both the first beneficiaries and (in most cases) the financiers of the project (through taxes or user charges). From the point of public authority, contract management is going to be significantly different in terms of its nature and intensity, requiring a hands-off approach that keeps in mind that the design, construction, operation and maintenance

responsibilities have been transferred to private partner. The focus has to be more on quality assurance, spot-checking and monitoring performance against output specifications that are related to the service standards to be delivered.

3.17 Generally, Government authorities have a fairly well equipped in-house technical and supervision expertise available. In the traditional contracts entered into by the Public works Authorities (who have been dealing with Road works traditionally), the contractor was being paid for the goods procured and the contracts were very precisely defined in events of default. However, in case of toll roads, contract management is governed by continuous monitoring and direct recourse to private sector remuneration is generally not available. Having performance bond may mitigate such a risk to an extent. Governments are greatly reluctant to terminate concessions fearing disruption in services as well as for having to enter into a long and protracted legal battle. Such a situation requires different contract management skills. Accordingly, traditional technical skill sets need to be remoulded to changed scenario.

3.18 However, the expertise in other sectors is typically lacking. Government officers are ill prepared when confronted with private sector negotiators who are generally backed by top class lawyers, financial advisers and technical experts. This often results in prolonged and sometimes-failed negotiations to conclude the PSP process, as Government side does not have informed basis from which to negotiate.

Different Formats for Task Team

3.19 A perusal of the experience across the globe where PPP has been practiced is a clear indication that there is no one solution. The approach generally had been pragmatic. Entities looking after similar programs have evolved over the time. Such institutions have been built up as the action unfolded on the basis of the problems/solutions encountered. Thus, different countries have come up with differently structured entities looking after PPP programs. Two such examples are described Para 3.20 and 3.21.

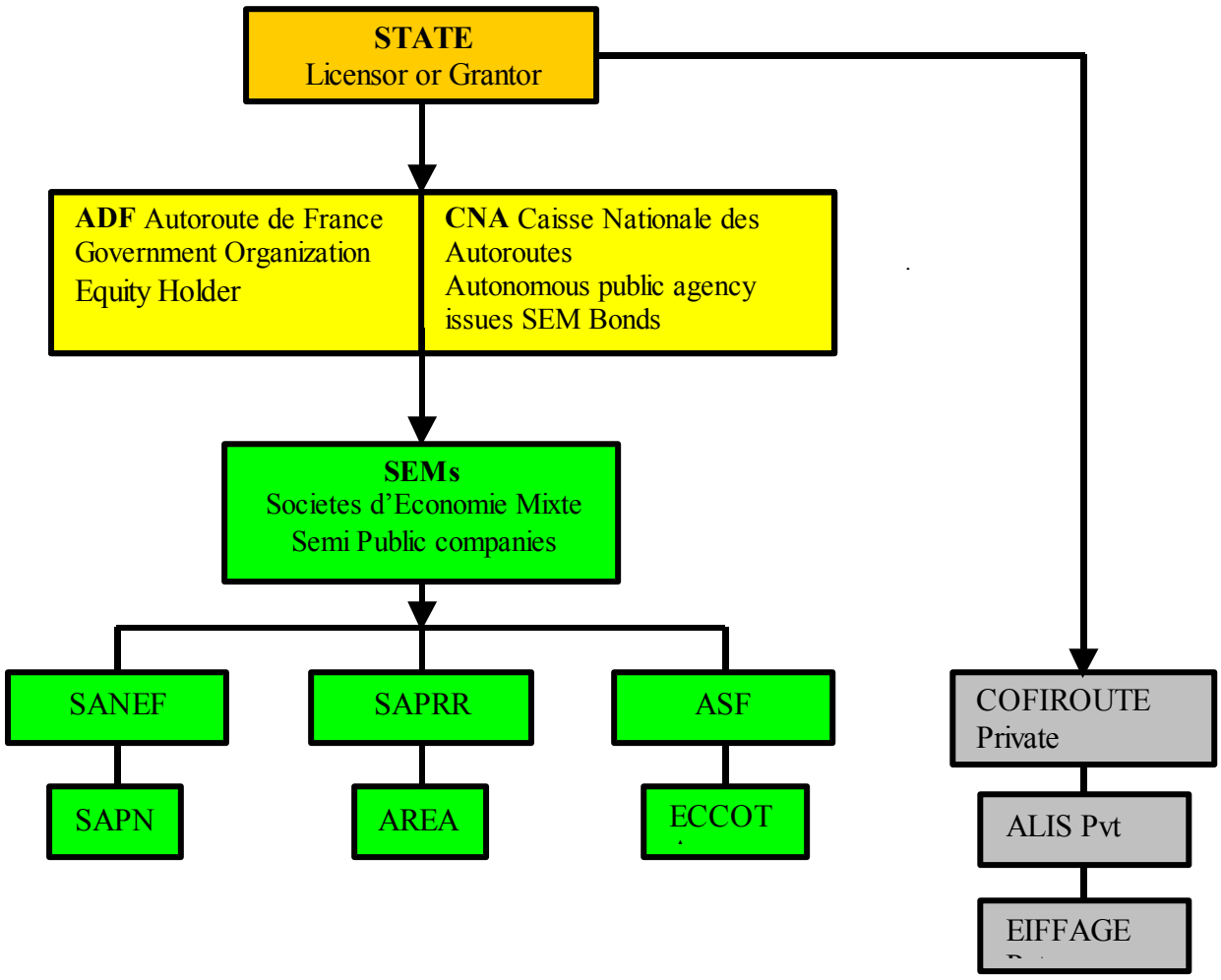
French Road Administration Model

3.20 The French tradition of giving highway concession started with largely Public-Public partnerships in early 1959. Major part of motorway network was mainly developed in the 1960s and 1970s. The first concessions were awarded in the period 1956-1963 to five Societes d'Economie Mixte (SEMs) which were commercially structured, state owned bodies, a mix of national and local government ownership. In 1969, four private sector concession companies were founded. Economic problems following the energy crisis in the early 1970s caused financial difficulties for these companies and in 1982 the government bought them, with the exception of Cofiroute, and converted them into 6 SEMs. An 'equalization' policy was introduced, with a public entity Autoroutes de France created to manage surpluses & deficits. This policy backed to produce reimbursable grants and ensure balanced financial operations. The SEMs operate under a profit control regime that allows them to distribute dividends of up to 7 percent, with excess profits being paid to Autoroutes de France. After the reimbursement of all the advances, the SEMs were organized into 3 groups; in each one more profitable SEM supporting a smaller less profitable SEM. Before 1998, new concessions were granted by negotiating with the existing operators.[16] After 1998, the European Union directives on public procurement were adopted in France, and since then the concessions are awarded through competitive bidding process. Since 1998, there is also an increasing trend to sell the government equity in existing SEMs. Figure 8 shows the French organisation and concessionaires.

A complete list of all road concessionaires in France is at Annex D.

[16] A large part of the network of Autoroutes, as the expressways are called in France, was developed by 'backing up' arrangements. The existing concessionaire was asked to take over new length of road to be developed which were not commercially viable. In the bargain, the entire existing concession was renegotiated and extended. However, after 1998, EU directives call for open competitive bidding to give firms from all the EU equal chance in participating in the bid. Direct Negotiations for entering into a concession are a rare exception.

Figure 8: French Government Organisation & Concessionaires



3.20.1 The present organization structure looking after the concession related work has evolved over a period. The organigramme of the French road administration structure and its unit dealing with concessions is at Annex E. The French road directorate has a full fledged organizational wing (called "Sous Direction") working directly under the control of Director which is in charge of all concessions related to expressways. This department is called " Sous Direction des Autoroute et Ouvrages Concedes" (R/AR). It further has three different sections, those dealing with

- Office of Operations of expressways (Bureau des opérations autoroutières)
- Office of the programming, financing and concession of the expressways (Bureau de la programmation, du financement et de la concession des autoroutes)
- Office of management of Tolled expressways (Bureau de la gestion et de l'aménagement du réseau concédé)

Besides this, there is a Mission having two divisions looking after the works related to tolled network and its operations. This is a independent entity directly responsible to the Director. Complete Organigramme of the Mission is at Annex E-3/3.

- Mission of control of Toll expressway operators (Mission du contrôle des sociétés concessionnaires d'autoroutes)
    - Division for Construction and maintenance of toll roads (Division de la construction et de l'entretien)
    - Division for services and way side amenities associated with toll roads (Division de l'exploitation et des services autoroutiers)

3.20.2 For awarding a concession, the project selection is done at sous direction level and they set the various parameters related to bidding[17]. The administrative department launches the bid and receives it. Its job is to see that bid is complete as per the requirements laid down in the letter of invitation. At that point, the complete record is handed over to a inter-ministerial commission. The inter-ministerial commission does not possess any statutory existence. It is constituted by executive fiat and draws its members from various ministries like finance, environment etc. This inter-ministerial group evaluates the proposals which have been received and for doing so it is at liberty to hire any person or experts be it legal, financial, environmental or technical as the case may be. Finally, it submits its recommendations to the Minister in charge; usually two choices in the order of preference are submitted. Technically speaking, the minister is at liberty to

[17] As per a new ordinance 2004-559 of June 14 2004, such selection has to meet full mandatory scrutiny on all grounds by a independent commission set by government .

accept or reject advice of mission. However, usually the minister accepts the recommended first bidder. The administrative department then negotiates the contract, without altering the bid in a material manner.

Philippines Road Administration Model

3.21 In comparison, the approach of Philippines government has been different.[18].

3.21.1 Each sectoral agency has established a "BOT Unit" responsible for coordinating the design and implementation of its projects. For example, the Department of Public Works and Highways (DPWH) have their own BOT unit. The orginnagramme of this unit is at Annex F. The authorities prepare a list of priority projects, which must be approved by either the Investment Coordination Committee (ICC) of the National Economic Development Authority, the NEDA board, or by local or regional councils, depending on the conceding jurisdiction and the cost of proposed projects, as specified in the Implementing Regulations to the Law. Presidential approval is required for works that are undertaken on build-own-operate basis or through contractual arrangements other than those defined under the law.

3.21.2 A BOT centre was established in 1995 under the office of President. It has about 4 professional staff members, with 5 consultants on the average. It performs following tasks:

- Assisting line agencies prepare projects
- Assisting them negotiate by providing specialist expertise i.e. in legal and project finance aspects
- Marketing projects internationally (through brochures and road shows) to potential investors
- Providing general advice to foreign investors doing business in Philippines
- Keeping an updated national inventory of all nominated PPP projects

[18] Philippines had started a large private infrastructure program under 1989 BOT laws and Regulations. ADB had actively participated in this programme and widely appreciated the approach taken by the government.

- Providing training to central and local government officials on the design and implementation of projects
- Developing changes in implementing Rules and regulations of the BOT law

This arrangement has been able to procure at least US 3 road works worth $3.5 billion.[19]

3.22 It can be argued that perhaps there is limited possibility of ready-made solution and a process-based solution perhaps is the right one. However, it is not that every country, which embarks upon attracting PSP, has to "reinvent the wheel". It is worthwhile to draw upon the experience, success and failures of others so that learning curve is sharp and the entire process of PPP can be jumpstarted. Using the terminology of Multi-lateral institutions, "capacity building" steps should be part of the process.

Outsourcing vs. In-house Capacity Building

3.23 While constituting the Task Team, a clear definition of what is to be done and how it is to be done is required. The first phase of finding the solution is to list out the set of tasks i.e. what needs to be done. Second phase can then focus on how those tasks are to be performed i.e. whether those are to be done in-house or are to be outsourced.

3.24 The answer to the first phase has been attempted in *"Requirements of the Task Team"* Para 3.13 & 3.14. It is a broad list that can easily be expanded to add more functions and details by including sub-tasks under each identified task.

The second phase poses interesting challenges. The answer to it may lie in the answer to subset of following questions:

- Which expertise is missing- completely or partially, in governmental agencies handling PSP?
- Does one need to have such specific expertise available in government?

[19] Source: DPWH, Government of Philippines

- Is the missing expertise available at a National level? If the answer is 'no', then
- How to facilitate as quickly as possible the adaptation of foreign consultants to national milieu?

3.25 As a policy solution, which is greatly favoured across the world, all such expertise that is not available in-house is preferred to be outsourced. The reasons are:

- It is overall more economical as no full time persons need to be retained.
- The expertise available in private sector is generally superior and remains more up to date in its knowledge base.
- There is wide choice available for an entity by engaging different firms having experience in different environments.
- The resources are optimally utilized i.e. instead of retaining a person on full time basis, the work is contracted out on as required basis.

3.26 As a concept, outsourcing is no different from sub contracting, which is commonly used in the construction industry. However, there are substantive differences too. The downside of outsourcing the processes related to PPP are:

- Large projects, which have inherent risks, get consultant led.
- Consultants end up being de-facto in-charge of critical decision-making process as well as overall strategy.
- The potential bidders tend to interact with the consultants more than the government since traditionally they had been on the same side of the fence. This is of greater prominence in countries where the consulting industry is not very widely based.

3.27 There are several ways to outsource safely. The endeavour should be to build up simultaneously some in-house capacity by including skill transfer as one of the key objective of outsourcing. For example, to fill the gap on a missing expertise, it should be ensured that government functionaries should work side by side with the hired experts. For this purpose, it would be essential to identify such persons on government side as well as expertise to be gained. Such persons should be one who would lead the tasks in future.

3.28 As a principle, outsourcing is not abdicating but leveraging. It should be adopted to leverage the skill and resources available elsewhere while meeting the overall objective. While detailed expertise can be contracted out, Task Team still requires staff with relevant expertise to hire and oversee such consultants, and to be able to incorporate the lessons for future. Usual government agencies have requisite technical expertise available with them. However, they will be better served if some in-house financial expertise is also developed over time. This is more so because the PPP contract (depending on its structure) does expose the Government to substantial contingent liabilities. It may thus be a good idea to keep a track of information emanating out of the project and continually transform it into knowledge for taking preventive measures.

PPP Team Structure in NHAI

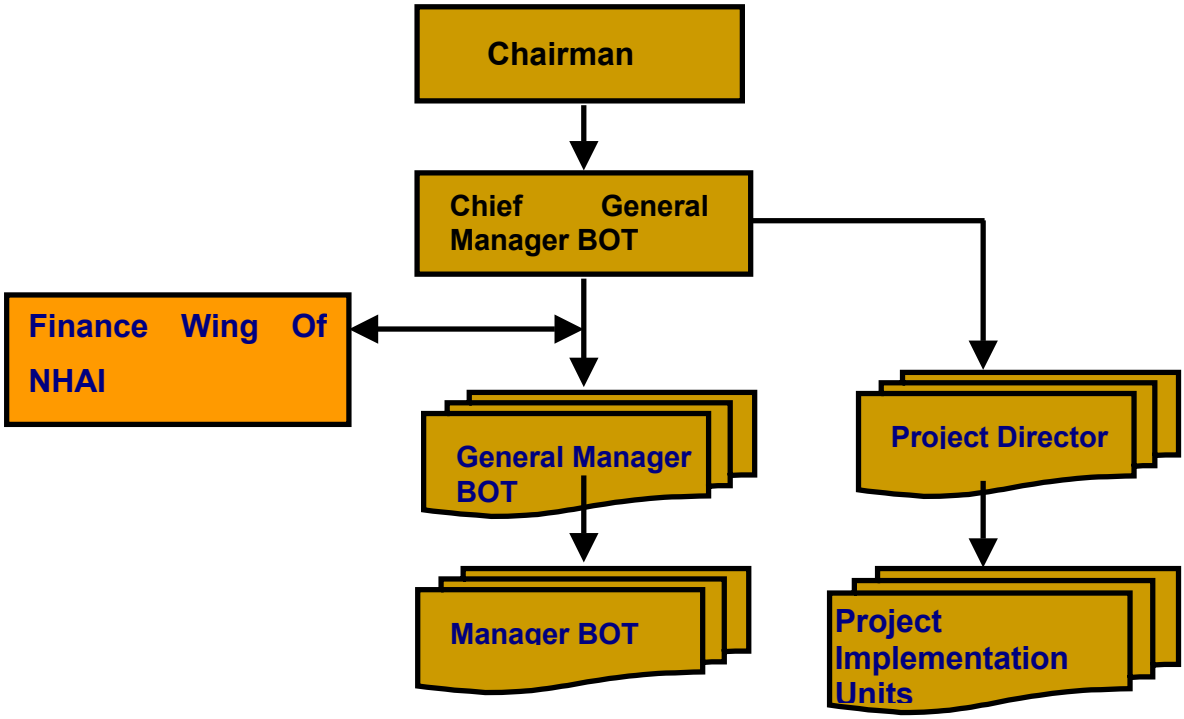
3.29 NHAI is the agency entrusted with giving out concession in the Highway sector at federal level. The organization chart of NHAI is at Annex F. Currently, NHAI is headed by Mr. Santosh Nautiyal, IAS (an administrative civil servant belonging to Indian Administrative Services) who had taken over as Chairman on January 01, 2003

3.30 For implementation of BOT projects, NHAI uses a traditional hierarchical format of Public Works entities. There are Chief General Managers (CGMs), General Managers(GMs), Deputy General Managers (DGMs) and Managers. They have been structured into teams depending upon the program they are dealing with (NHDP vs. Post-NHDP). Since the Post-NHDP projects deal exclusively with BOT projects, the CGM concerned is called CGM (BOT). CGM (BOT) is responsible directly to the Chairman unlike for other works where the CGMs are under a Member.

3.31 The structure specifically created for the BOT-based 10,000 km odd PM-BJP Program (Post NHDP programme) has one CGM (BOT) reporting directly to the Chairman of NHAI. There are 2 GMs (BOT) under him, and 2/3 Managers under each of the GMs. CGM is a Chief Engineer rank officer. Earlier in the ongoing NHDP Program, the concerned CGM/ GM who had been geographically

assigned the various sections of the NHDP dealt with the BOT projects falling in his territorial jurisdiction. Figure 9 explains this arrangement.

Figure 9*: BOT Unit in NHAI*



3.32 It is not surprising that Team created in NHAI has a preponderance of technical members. The reason was that its primary mandate was time and cost bound implementation of National Highways Development Project (NHDP) bulk of which was completed through work contracts**.** In NHDP, projects worth Rs 6000 crores or US $ 1.3 billion only (equal to approximately 10% of total size of program) were undertaken through PSP. However, post NHDP programme on national highways seeks very active private sector participation. Hence, there may be a necessity to enhance the capacity & capability of BOT unit.

3.33 The works are put to bid through CGM BOT and are evaluated by an evaluation committee. This evaluation committee involves a person from Finance wing (under Member finance) of NHAI. Typically, the involvement of the Finance Wing is at the level of DGM (Finance) because the operating level in Finance Wing of NHAI is largely the DGM. This involvement is at two levels

- One; before bidding out a project, these persons from the finance wing along with the financial consultants and the technical managers of NHAI & technical consultants work out the financial viability of each project, and if required figure out ways and means to improve commercial viability. However, their job is restricted to be within the overall framework of the approved Concession Agreement and other legal documents. They also look at the element of grant in the project and the method/ schedule of its disbursement to the chosen concessionaire. They also respond to bidders' queries on financial matters during pre-bid meeting or which are received otherwise in writing from the bidders.
- Two; after the receipts of bids, Finance Wing representative is on the Evaluation Committee of NHAI to evaluate the (financial) bids and select the preferred bidder.

Technical and Financial Consultants, and at times Legal Consultants are also appointed to help the process of award. Specific cabinet approval is finally required for entering into a concession.

3.34 BOT team at NHAI also has the mandate of monitoring and administering the concession during its tenure. This is to be done along with the various project offices (Project Implementation Units or PIUs, headed by a Project Director). Because none of the Concession Agreements have been signed thus far (PM-BJP projects being dealt with by the exclusive BOT team at NHAI), therefore, that part of their role is not immediately apparent at this point. As mentioned in Para 3.31, the concerned CGM and GM are presently monitoring the few ongoing BOT projects along with the concerned PIU (headed by the Project Director). Such persons are not part of the BOT unit explicitly.

3.35 The work of construction, supervision and project monitoring is assigned through contract agreement itself, whereby an independent engineer is sought to perform all the duties of an engineer. The independent engineer automatically means that the function of construction supervision and monitoring are passed on to an external agency.

PPP Team Structure In Punjab

3.36 Punjab infrastructure development board is the apex body responsible for granting concessions in the state. PIDB is headed by a board of directors comprising of Chief Minister, Punjab as the Chairman & Finance Minister as the Vice-chairman. It also includes Chief Secretary, Principal Secretary to the Chief Minister of Punjab, Managing Director of PIDB, three government nominated technical experts, Minister or Secretary of the concerned Administrative Department and Principal Secretary Finance as Member Secretary-cum-Convener.

3.37 At operational level, an Executive Committee (consisting of four permanent members, three Technical Experts and any one other member to be nominated by the Board with a provision to invite Administrative Secretary of the concerned Administrative Department as special invitee) is constituted under the chairmanship of the Chief Secretary to Government of Punjab to assist the Board in the performance of its functions. Most of the committee members (are civil servants and) have ex-officio presence. They perform this job in addition to their existing duties.

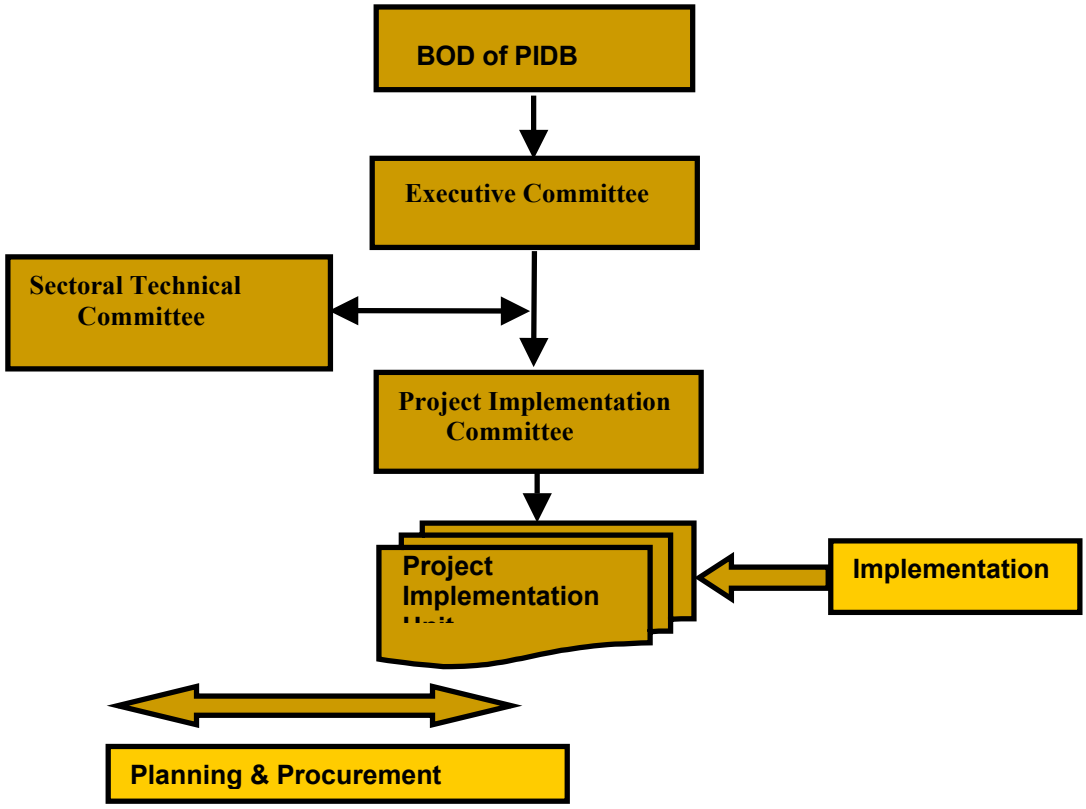
3.38 Vertical centralisation of concession granting has been planned. PIDB is to guide the line Departments into entering into BOT contract. Sectoral Sub-Committee or Project Implementation Sub-Committee or Committees are to be constituted by the Board for this purpose.[20] Figure 10 shows existing organisation structure for BOT works. Ordinarily, project implementation committees shall have members from PIDB (derived out of its Project Management team of technical, financial & legal experts) and representatives of line department. Though not explicitly specified, such nominations shall in all probability be ex-officio. Such sectoral committees are assigned the following tasks:

- Formulation, review change and implementation of the sectoral policies for private participation in the infrastructure sector,

[20] *Clause 21*, Punjab Infrastructure Development and Regulation Act of 2002

- Conducting of feasibility study and preparation of feasibility report and,
- Formulating the Sectoral packages of financial incentives and concessions: Each Project Implementation Sub-Committee has the specific tasks of:
- Providing proposals to the Board for taking decision on project identification and priority,
- Finalising the scope and structuring of infrastructure project
- Pre-bidding and bidding procedures
- Election of concessionaire and recommending grant of concession, and,
- Implementing, supervising and monitoring of project

Figure 10*: Existing Organisation Structure in PIDB for BOT Program*



Suggestive Enhancing Measures for NHAI

3.39 In the following paragraphs, an attempt has been made to formulate a strategy for defining a task team for BOT works at federal level in India. NHAI has a credible unit, which is looking after the BOT works, and the fact that it has been able to grant a large number of concessions is a good indication of its efficiency of dispatch. However, it is felt by the author that a more global & structured approach for BOT works can be taken in order to make it more efficient.

3.40 It is possible to group the tasks to be performed while dealing with PSP in road sector into five different departments or divisions. These departments should be structured on organic model with two or three levels of management and should not have rigid boundaries except one at serial number 2. There should be a free flow of information from one department to the other. These proposed divisions are:

- Project Planning and Financing Division
- Project Evaluation and Auditing Division
- Procurement Division
- Contract Implementation Division
- Project Information Division

3.41 **Project Planning and Financing Division** should be responsible for overall network planning, project phasing and arranging & allocating funding for the ongoing as well as future projects. This should make adequate provisions for contingent liabilities, which are woven into such contracts and ideally; it should maintain a register of contingent liabilities so that adequate cover for those can be kept. The contingent risks in a concession programme are very real and often, because of the accounting procedures involved, do not get reflected in the accounts of the government. This division can be an equitable blend of engineers and economists and persons with finance background. A transport economist expert shall be of great usage in this set-up. This unit shall explore all the possible options and make a choice on the format of PPP to be adopted. Legal support shall be required for this unit for putting in place draft legal documents to be followed. Similarly, financial expertise shall also be required. A large amount of

work associated with this unit can be outsourced. Summary of tasks that shall be entrusted to this division are:

- Initial project identification & prioritisation
- Setting of timetable for implementation
- Making the financial plans & setting the size and form of government support
- Project Optimisation
- Hiring of advisers
- Securing the project approvals
- Conducting public hearings for project
- Land acquisition & associated resettlements
- Permission & licenses required for construction
- Risk allocations
- Establishing procedures for providing the government support
- Identifying & establishing the performance targets
- Reviewing legal and regulatory issues
- Approving works changes

3.42 **Project Evaluation and Performance Auditing Division** should be an independent division within the set-up. It should be responsible to the top CEO. Its main job should be independent evaluation of the project selection put forward to it and to ensure that all the statutory provisions have been met with. Further, it shall ensure that PPP is being tried as a preferred option over the traditional means of executing the same i.e. the works which are being undertaken are the ones that ***should be*** done on PPP format and not simply because they ***can be*** done so. In the event of non-approval, such a review should recommend alternates for executing the works within the constraints. The main reason for having this kind of establishment is to avoid the over-zealousness on the part of persons associated with the initial project selection to gloss over the infirmities in the project and push it on at all costs. As pointed in Para 2.32, the keystone to a successful and lasting PPP is right project selection and no amount of effort involved for this purpose can be enough. Subsequently, this unit should be

actively associated with the post project reviews of ongoing works at periodic intervals by checking and validating the assumptions made both by the concessionaire and the government in assessing the project risks This is mandatory to cull out lessons for future and draft advice on how best to improve the process and procedures for making a better choice. This unit is necessary as PPP is an evolving format and hence continuous in-house evaluation is required. There is another major reason to have this division; the need to harmonise and standardise the operation and service requirements to provide the same level of services to road users. For example, this unit should help evolve the standards for safety equipment like crash rails, toll equipment, signs so that the overall networks should be uniform and not a collage of various operator's perceptions of standard and specifications. Other function that can be ascribed to this unit is to encourage research to bring about innovation in solution providing. For this purpose, it can involve various engineering companies, institutions, contractors and local agencies. It is believed that having a national policy of encouraging innovation not only in engineering solutions but also financial ones will pay great dividends in optimal utilisation of national resources.[21] Various functions to be performed by this division are:

- Final Project selection
- Independent periodic review of the ongoing works
- Preparing composite project information dossiers
- Preparing standardisation plans for use across the concessions
- Preparing advisory notes for contract implementation unit
- Preparing policy notes on PPP
- Directing and financing research into innovation in solution providing

3.43 **Procurement Division** should undertake the process of actual procurement of the works; be it through competitive exercise or open competitive bidding. All the

[21] A ongoing study being conducted by EGIS for French Government suggests that 7 Million Euros being spent annually by the Government to encourage innovation in Highway sector have resulted in savings of 50 to 100 times over a period of study involving past 10 years. These savings do not take into account indirect savings but are specific direct savings in solution providing.

bid evaluation parameters should be defined out by it and the actual procurement process should be its responsibility. This department should work in close association with the Planning division. Procurement specialists, contract negotiators would be required in this division. This shall also require considerable financial expertise to evaluate the financial parameters/assumptions associated with the bids. The tasks assigned to this division shall be:

- Setting the size for each bid i.e. parcelling of project
- Packaging of projects[22]
- Marketing of the project to potential bidders
- Finalizing the performance indicators in correspondence with the previously approved performance targets
- Establishing prequalification criteria
- Setting of bidding criterion depending upon the risk transfer matrix established by the Project planning division
- Setting the bidding process
- Pre qualification of bidders
- Evaluation of proposals
- Award of contract

3.44 **Contract Implementation & Regulation Division** should be responsible for all activities related to contract implementation. This division shall have a majority of engineers well acquainted with project implementation, project documentation etc. This staff should be well equipped to do the spot-checking and be trained specifically to monitor the service parameters in an objective manner. The works to be performed by this team are:

- Implementing regulatory rules as defined in concession agreement
- Supervising and monitoring
- Recommending work changes
- Enforcing rules i.e. imposition of penalties

[22] The aim should be to combine a project with clear commercial viability with the one where project economics are not optimum so that overall package can be marketed successfully. The aim is to imitate the French example of constructing substantial part their motorway network through " Backing up" as detailed in footnote 14.

3.44.1 Another concern is the loss of owner expertise under this program. NHAI is increaseingly taking over the National Highway assets from state PWDs and is likely to emerge as a single major road institution in India. Simultaneously, India shall move from a program with 1 concession to a program with nearly 100+ concessions covering a nearly 25% of network. While it may enable to downsize the engineering and administrative staff in the government as a whole, but it would also result in a loss of valuable expertise. Government can be relieved of direct responsibility for developing major projects, but must continue to develop design, construction and operation standards, and policies that will be the basis for establishing the scope of the concessionaires' obligations. Alternately, it would be completely dependent on consultants in the performing such tasks, which may not be a sound strategy. The loss of expertise will be felt in coming years, both in the lack of resources for reviewing future concession proposals and in the administration and oversight of current contracts.

3.44.2 It is proposed to supplant the institution of Independent Engineer as envisaged in the Model Concession Agreement of NHAI. As brought out earlier (Para 3.16.4), contract supervision in PPP works has an entirely different focus. Concessionaire shall be having his own engineers at work site. Similarly, government will also have its own engineering establishment reporting on the work directly to it. Independent Engineer are required more from the point of view of lender. Having a separate engineer to be paid jointly by both the concessionaire and government is to an extent superfluous and might not add any significant value to the project quality. Further, due to limited market of quality consultants in India, there may be a chance of conflict of interest arising.

3.44.3Government case is best served by having its own crack team of engineers, which will do the spot testing and review the quality of data flowing out of the project. This unit should be modelled after the French Division for Construction and maintenance of toll roads (Division de la construction et de l'entretien, Annex E 3/3) which alone looks after the entire network both during the construction as well as maintenance phase and is totally responsible to the government.

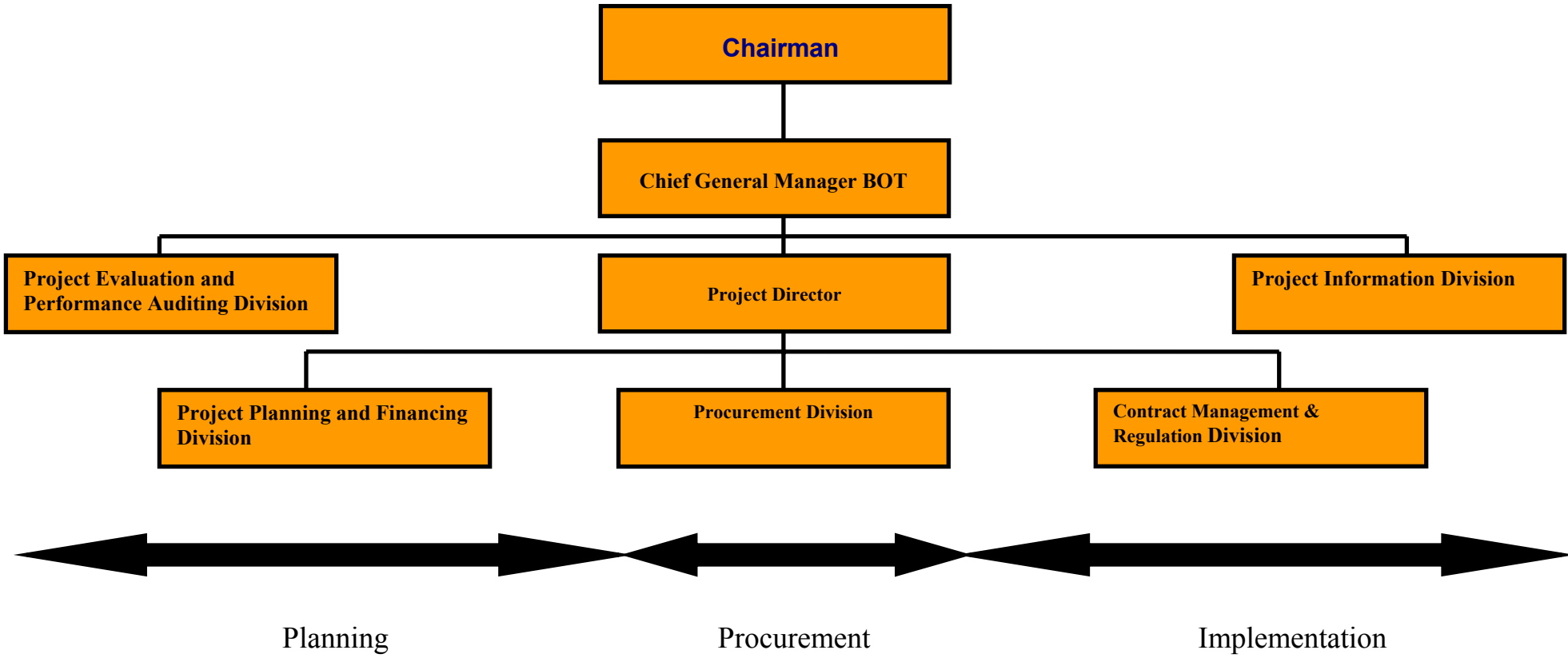
3.45 **Project Information Division** should be vested with the job of initially marketing the projects to investors and at a later date to disseminate all project related information through different media to public. For this purpose a Open-Day meetings should be conducted by this division where the projects which are likely to be put up for bidding are explained to various actors of PPP format i.e. Bankers , other lending institutions, engineering consultants, engineering firms, contractors and entrepreneurs in general. This shall help to create awareness in the all related groups and will enhance the overall project quality by bringing together such groups. Trained public relation persons duly supported by ancillary staff can handle this work. This division should be able to provide answers to project specific queries emanating from potential investors. It should also release project information at periodic intervals to public so that a pressure is maintained on the concessionaire to perform through public vigilance. Further, it should prepare project statistics, create public awareness about user charges and gauge the expectations of user by continually interacting with them. The task of this team is really very important for the overall success of PPP program.

3.46 A possible structure of a team for working on PPP projects in NHAI is depicted in figure 11. The exact size of individual divisions shall be dependent on the amount of the work to be handled by each team. The efforts involved in the processes of awarding and administering concessions increase somewhat linearly with the number of contracts. It is also proposed that:

- Bulk of legal work should be outsourced.
- The financial expertise required should be outsourced with an embedded objective of skill transfer. Such persons should be identified upfront so that they can be involved in the financial evaluation from project planning onwards.
- The engineering staff should continue to be brought on deputation from other government organizations and best amongst those should be retained on more permanent basis in the NHAI organisation structure.
- Retaining technical persons from private sector on deputation with NHAI should be attempted to strengthen such a unit.

- In order to retain the best and the brightest, the compensation paid to the personnel working on PPP task team should be comparable to those paid in the private sector. Expectation of any qualitative change in the performance in the team without providing enough incentives may be an optimistic approach.
- The engineering staff should be given intensive training in transport economics, network planning, contract management, project finance, contract negotiations, valuation of government guarantees, traffic forecasting, tariff regulation etc.
- NHAI should pilot the research programme for innovation in methods and policies relating to highway construction by engaging educationists, institutions, universities, contractors, and consultants. This shall go a long way in helping providing guidelines to states that are facing funds shortages.
- NHAI may consider creating a pool of legal and financial resources within its task team structure, which can help states to embark on PPP projects at lower costs. A long-term handholding is mandatory to bring down the costs involved in the exercise.

Figure 11: Proposed Organization Structure for BOT Unit in NHAI



Suggestive Enhancing Measures in Punjab

3.47 In Punjab, due to existing legal provisions, the organization of task team has to be different. The existing provisions of PIA envisage forming of sectoral committees and sub committees for performing the functions associated with the private sector infrastructure development projects. It may be better from operational point of view to structure those committees more tightly. It can be accomplished by assigning them tasks that have clear objectives while they work towards a common goal.

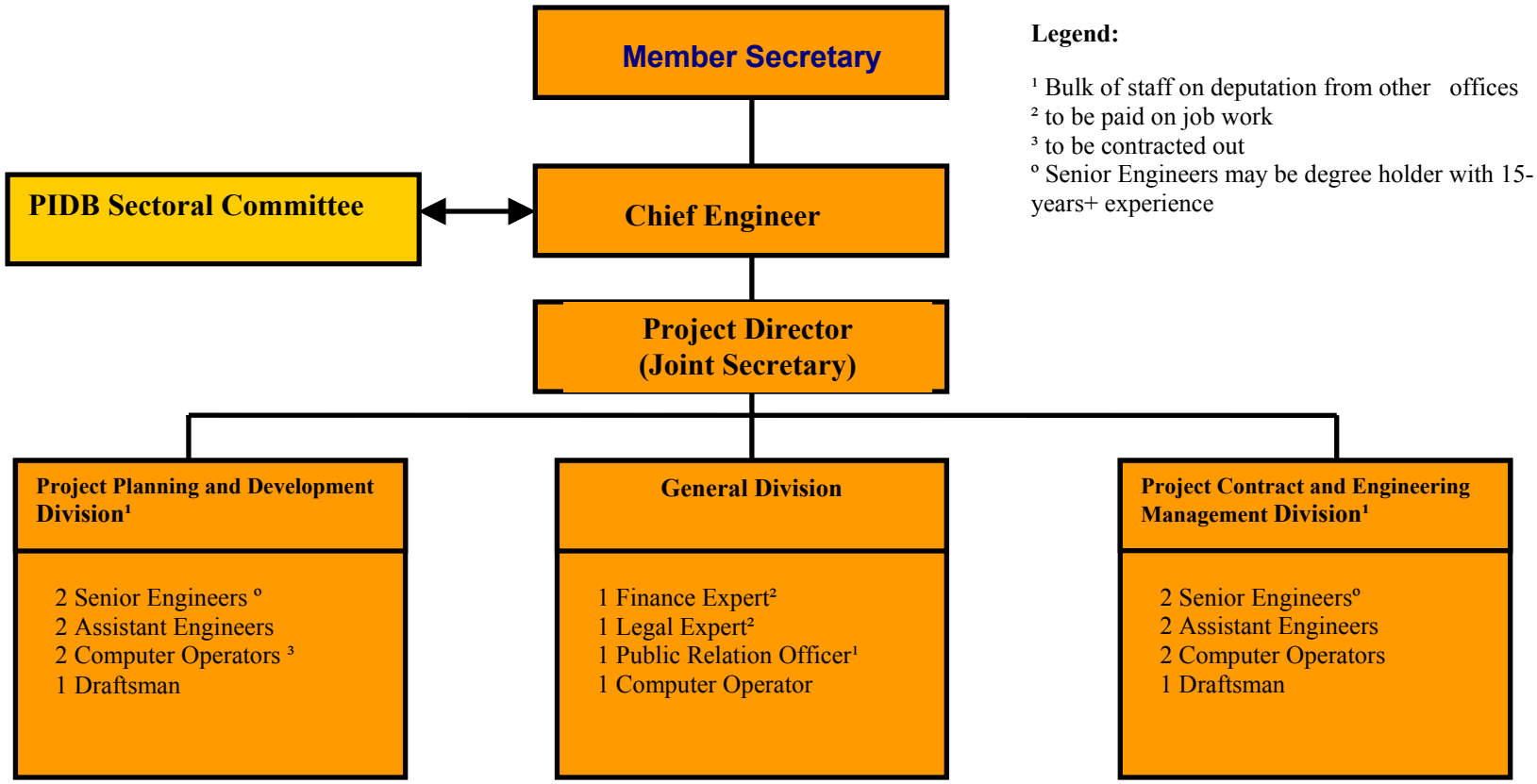
3.48 However, there is a catch in the situation. PIDB does not have enough manpower (it has only one Chief Legal Advisor and one General Manager besides one Technical Member cum Joint Managing Director) who can to sit on various sectoral committees. Such jobs require full time engagements and sector specific exposure and expertise to make the outcome more meaningful.

3.49 In the view of the author, an approach on the model of Philippines shall be more advantageous for securing the private sector participation. Therefore, a system of specialist “BOT Unit” should be encouraged in each sectoral agency. For road related works, for example, Punjab Roads & Bridges Development Board can be treated as sectoral agency and the BOT unit for securing PSP may be constituted under that. It shall be this unit that shall be responsible for coordinating the design and implementation of its projects. The overall framework for award can be designed by PIDB and the various sectoral agencies can select and award projects under its framework. In addition, PIDB can perform the functions of BOT Centre in Philippines model as described in Para 3.21.

3.50 As a strategy, Project Evaluation and Performance Auditing Division proposed in the task team structure for NHAI in Para 3.42 can be made integral in the PIDB structure while different departments should be allowed to proceed in the manner is best suited for them by constituting their own Task teams.

A organigramme for such a task team in PRBDB is shown in figure 12.

Figure 12: Proposed Organization Chart for BOT Unit for Road Works in PRBDB



IV SELECTION PROCEDURES

4.1 PPP has often been described as being close to the institution of marriage. It is so because of the rights and obligations that permeate from forging such associations are on long-term basis and require the collective will of both the partners to make it work. As in marriage, the partners have to perform jointly and singly the functions that are divided upon mutual agreement. If one is to carry the same analogy forward, the selection of the concessionaire itself can be termed as proverbial Indian 'bride hunting". The success of the concessions is dependent not only on getting the provisions of the contract right but also on the concessionaire himself. The importance of selection of the right private partner in the PPP cannot be over-emphasized. Therefore, the design of appropriate method for selection of concessionaire is a must to be able to find the right partner, a partner capable of meeting the performance objectives at the most economical prices.

Purpose of Selection Procedures in PPP Procurement

4.2 Public procurement, as opposed to private procurement, is guided by a different set of principles. While both tend to strive for procuring goods or services at the most economical price, in private sector inefficient procurement is corrected or punished by market forces. In public sector, however, the impact of the market forces is not overtly visible. In the other case, the public bears the cost of inefficient exercise. Figure 13 attempts to capture the government and private partner objectives in PPP procurement.

4.3 In context of PPP, the selection procedure for finding a concessionaire should strive for following:

- **Economy:** It implies that the process should ensure the selection of a concessionaire who is able to complete the project at most advantageous price to the public while fully adhering to the performance standards.
- **Efficiency:** it means to be able to select a concessionaire within a reasonable amount of time and at a reasonable cost both to the government as well as to the participating bidders.

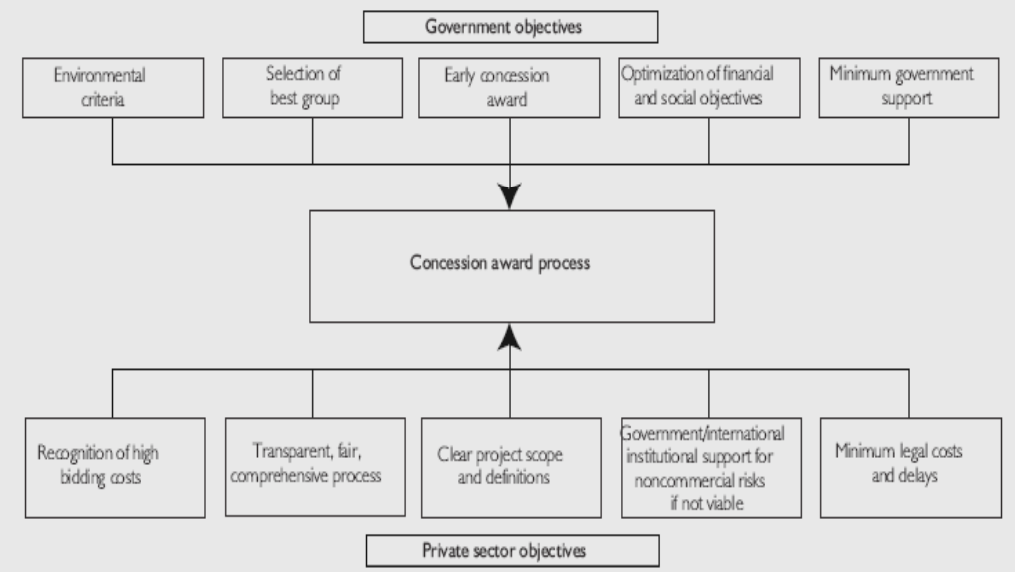
- **Enforcement of the integrity of the process of selection** is an important objective. The chosen procedure should be fair to all bidders and should contain provisions to reduce or discourage unintentional or wilful abuse of power by the person administering it or by companies who are participating in it. It should ensure that the selection decisions are taken on valid and just basis. This greatly improves the confidence of the investor and tends to bring down the cost.
- **Transparency of laws and procedures** implies that all rules & procedures that are to be followed by public authority and by the participating bidders are fully disclosed and are simple, systematic and easily understandable. The procedures followed should leave suitable records to ascertain the basis of decision flowing out of those. This is necessary for promoting accountability of public agency and facilitates the work of pubic authorities vested with exercising audit or control function.
- **Innovation:** In concessions, public sector defines the problem to be solved and performance standards to be met while allowing the private sector to come up with new ideas. The aim of the selection process should be to encourage innovation and protect the intellectual property associated with offers.

Types of Selection Procedures

4.4 Theoretically, following selection procedures can be used for PPP procurement.

- Free entry.
- Competitive Bidding
- Direct negotiations
- Competitive negotiation.

Figure 13: Government & Private Sector Objectives in PPP Procurement



4.5 **Free entry** implies that a private player is able to invest in a public utility on his own and derive compensation governed by market forces. The concept of free entry in the transport sector especially for toll roads is largely hypothetical because of the costs involved. But if free entry can be adopted, then there is no need for a firm to seek a concession from the government. Concession in itself means that a certain amount of exclusivity is sought and is required by the private player to start working. It is this exclusivity and privileges (concessions) that the private partner seeks from government in a Concession.

4.6 **Competitive bidding** is the most favoured of all choices as it ensures best economy in award. In fact the public procurement rules in most countries require competitive bidding for such procurements. The objective of economy is best met through the process of competitive bidding because it provides suitable incentives to participating bidders for putting forth their best commercial offer by adopting efficient and innovative methods for implementing the project as well as using the same during operational phase.

4.6.1 Competitive bidding can be of two types:

- **Open procedures** are the one in which any person is able to participate in the bidding process.

- **Restrictive procedures** are the one in which bidding is sought from restricted number of participants. This usually is done in two steps. In the first phase, pre-qualification of potential bidders is carried out. Such pre-qualification aims to narrow down the list of capable & competent participants and to discourage frivolous offers. These pre-qualified participants are then allowed to participate in the second phase. Some time a pre-selection is resorted to i.e. only a limited number of participants who otherwise are making the qualification criterion are able to participate in second stage. The reason for such pre-selection is that the economy deriving out of competition may not be enough to offset the cost of bidding process taken collectively and might dissuade well crafted bids. Figure 13 graphically represents the various steps of restrictive competitive bidding.

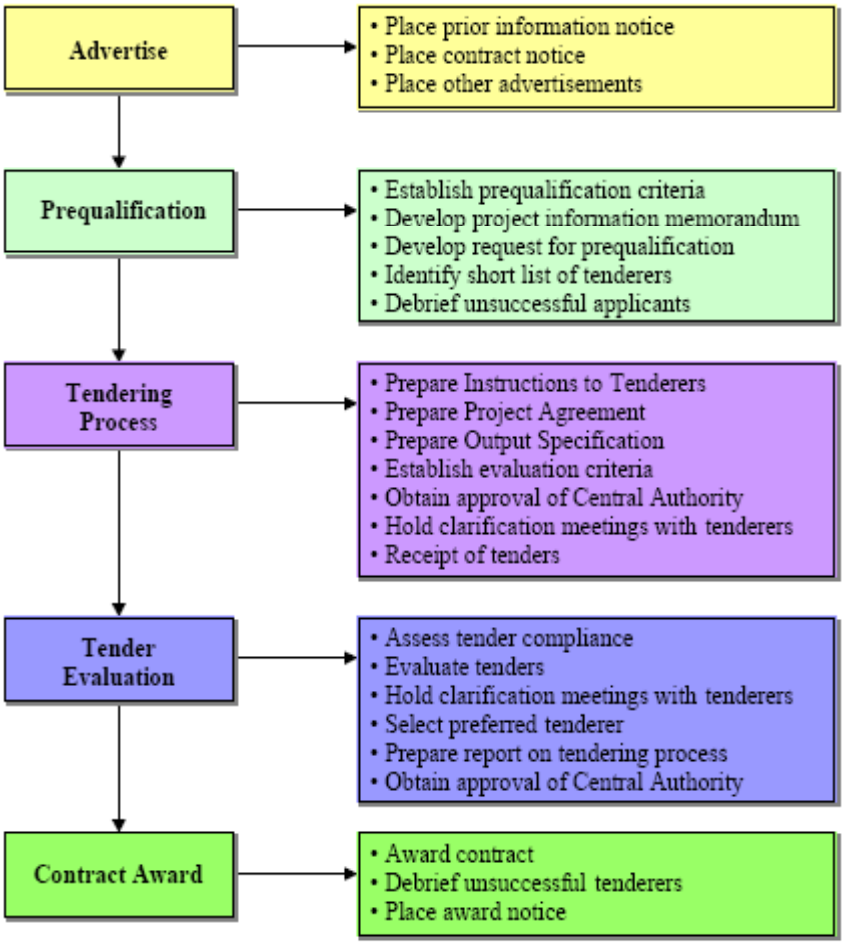
4.6.2 In a competitive bidding process, tendering for the goods or services is undertaken. This generally involves the following steps:

- Public notification of the government's intent to award a concession for a infrastructure project. It generally includes a request for expressions of interest.
- Release of bidding documents, related information, and draft contracts to potential bidders.
- A formal process for pre-qualifying potential bidders.
- A formal public process for presenting proposals, evaluating proposals, and selecting the winner.

4.7 **Direct Negotiation and Unsolicited proposals:** The complexities of the issues involved in a PPP make it difficult to select the partner on basis of written proposals alone. There is considerable body of experience available where the governments have had bitter experiences with firms selected through a bidding process. Some firms are good at making proposals and are able to hide their deficiencies or lack of experience. Others may be so desperate to enter the market that they commit themselves to promises they cannot keep. Many a times governments have been establishing direct contacts with reliable firms who are

well established in the field, who have similar experience and have sufficient experience to operate in the local environments.

Figure 14: Overview of Restricted Procedure for PPP procurement



4.7.1 Often under direct negotiations, private sector sponsor floats the project rather than the government. A developer or operator seeks to negotiate directly with a government or government-owned utility on the terms and conditions for an infrastructure project, whether it be a management contract, concession, BOT, BOO, or privatisation.

4.7.2 There may, in fact, be circumstances in which a full-blown competitive bidding process may not yield the best result for the public. Such instances can be :

- Projects in smaller municipalities, where it may be too costly to arrange a competitive bidding process or where it may be difficult to attract developers and operators.
- Emergencies and natural disasters, in which major projects or repairs must be completed rapidly.
- Projects involving proprietary or innovative technology.

4.7.3 The concession model has a key advantage that it allows the private sector to come up with innovative solutions to known problems. Innovation is attempted through a two-pronged approach:

- Introduction of newer products or technologies;
- Project Optimisation approach; In PPP, there are driving incentives to encourage such optimisation. Traditional project optimisation relied primarily on enhanced competition. However, in concession model, the key driver is *research* and *innovation* in methods and means both.

If the conceding authority uses such ideas to formulate competitive tender, it would discourage private firms from developing those. Direct negotiations help protect the intellectual property embodied in such bids.

4.7.4 There may be other situations where there is uncertainty *a priori* regarding the nature and scope of the work to be carried out and hence does not permit prior overall pricing. In these situations, recourse to negotiated procedures becomes inevitable.[23]

4.7.5 However, such negotiations require highly skilled personnel with sufficient experience in negotiating complex projects. A well structured negotiating team with clear line of authority and high level of coordination and cooperation amongst all team members is required for these negotiations. This procedure though lacks the transparency and guarantees on the sound use of public money. To mitigate these concerns, some degree of competition should be introduced or competitive forces should be

[23] Similar recourse is permitted in European Union Directive 93/37/EEC under Article 7(2)

replicated.[24] For example, for innovative designs and technologies, design phase can be contracted out separately and then competitive bidding can be used for implementation. Other measures can be:

- Using external advisers and consultants to assist government to evaluate the proposals
- Benchmarking against cost of similar projects
- Announcing the proposed project terms and conditions, and allowing other developers an opportunity to better the terms within a specified period.[25]
- Establishing independent advisory panel to review the proposed transaction.

4.8 **Competitive Negotiations** or Competitive Dialogues capture the advantages of direct negotiations and open competitive bidding.[26] It combines elements of competitive bidding with direct negotiation to promote transparency, while giving flexibility to incorporate innovative or proprietary aspects of developers' proposals.

4.8.1 There are two approaches to this format.

- In the first case, governments could initially use a competitive process to solicit proposals in response to broad output specifications and then negotiate directly with one or more developers. The government would have fallback bidders if negotiations with the preferred bidder failed. Figure 14 outlines various steps of competitive negotiated bidding.
- In the second approach, the contracting agency being unable to objectively define the technical means to satisfy the its needs or define the legal and/or financial form of project, opens dialogue with the

[24] The World Bank rules dealing specifically with private infrastructure or concession contracts financed by it, require that competitive bidding should be used at one of the two stages. Either the private concessionaire should be chosen through international competitive bidding or limited international bidding as the case be or in the event that the private concessionaire was not chosen following above procedures, the concessionaire shall be expected to procure goods, works and services on international competitive bidding basis or through limited international bidding. Hence either a ***competition for*** the market or ***competition in*** the market should be created.

[25] Popular term for this is " Swiss Challenge". This concept had been adopted in Philippines BOT law and is also included in Punjab Infrastructure Development Act, 2002.

[26] European Union Directive 2004/18/EC Article 39

candidates for the purpose of identifying solutions capable of meeting those needs. At the end of this dialogue, the candidates are invited to submit tenders on the basis of the solution or solutions identified during the course of dialogue. The tenders contain all the elements required and necessary for the performance of the project. The grantor finally assesses the tender on the basis of pre-stated award criteria.

4.8.2 In this procedure, the negotiations are directed towards

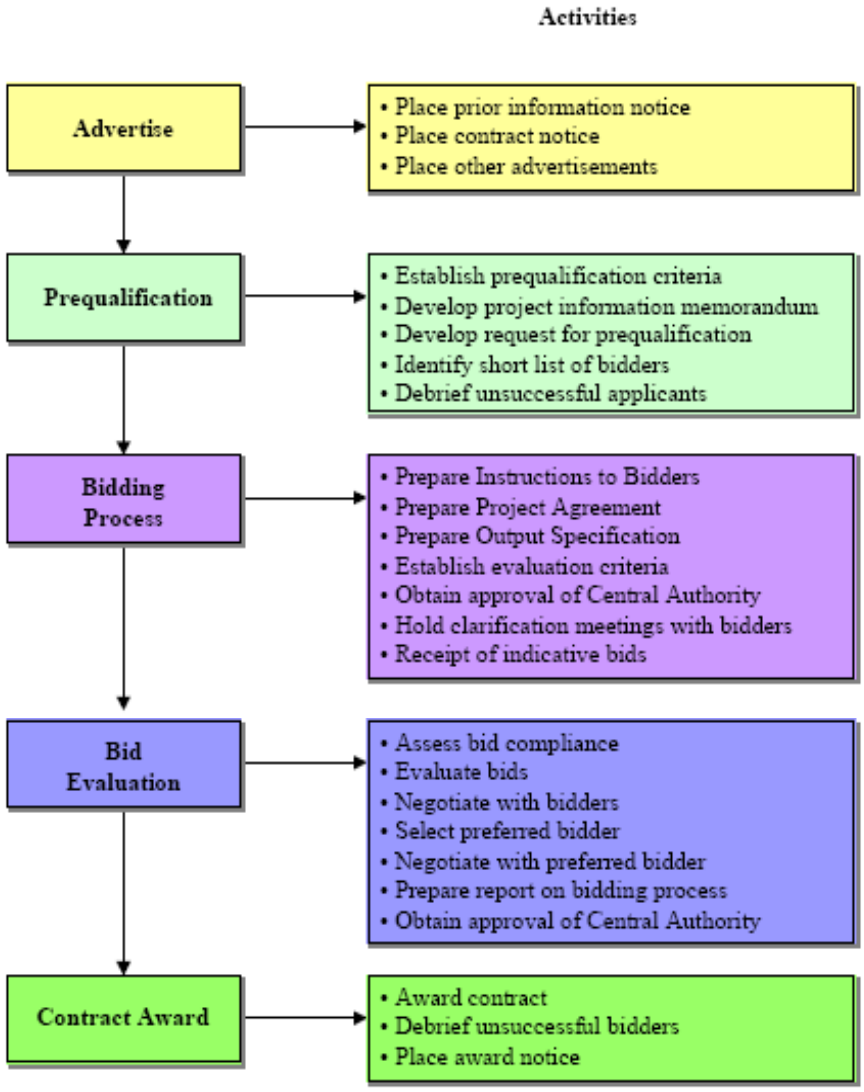
- Securing best value for money
- Securing the optimum allocation of risk
- Encouraging innovative solutions
- Reducing the transaction costs

A comparison of the three procedures is shown in Table 7.

Table 7: Comparison of Various PPP Procurement Methods

	Direct Negotiations	**Competitive Negotiations**	**Open Competitive Bidding**
Economy in overall Project Cost	Low	Average	High
Transaction Cost	Low	Average	High
Efficiency	High		Low
Discretion of Award	High	Limited	Low
Fairness to Competitors	Not fair	Fair	Fair
Innovation	High	High	Low
Transparency and Objectivity	Low	Average	High
Professional Skill required in Task Team	Very High	High	Average

Figure 15: Overview of Negotiated Procedure for PPP Procurement



[27]

[27] Outlined in *Procurement Management* Public Private Partnership Guidance Note 9 of Department of Environment & Local Government, Ireland (April 2000)

Special Features Relating to PPP Procurement Procedures

4.9 On the face value, open competitive bidding seems to be easiest choice for selection of the concessionaire. However, there are some special features that are required of selection procedures for PPP. These are:

4.9.1 **Range of bidders to be invited:** The cost involved in bid preparation and subsequent time consuming and expensive proceedings reduces the number of potential bidders who are otherwise qualified. On the other hand, allowing a large number of bidders reduces the chance each has of winning the bid and tends to discourage good investments in preparation of proposals. In addition, the cost to government also rises, as greater number of officials and advisors shall be required to process the bids. A similar approach is used in restricting the number of potential bidders for hiring of consultants to six.[28] . Usually, the governments typically limit the number of bidders to three or four because the costs associated with more bidders often exceed the benefits of additional competition.

4.9.2 **Definition of Project Requirement:** There are several ways of defining the project objectives and requirement of the contract. These have a direct impact on the selection procedures to be adopted. On one extreme, one can have a format inspired by traditional public procurement methods where objectives of the contract and the means to achieve those are strictly defined by the grantor and leave very little or no window for bidders to offer a choice from pre-determined technical and commercial parameters. On the other end of spectrum, one can have a situation where authority responsible for programme defines the objectives of the contract but leaves the project parameters thereby seeking development and optimisation of technical and commercial solutions and subsequently negotiates with the contractors.

In case of former approach, it is imperative that an exhaustive pre-tender exercise (including technical investigations and design, investment and

[28] Source: Guidelines of Selection and Employment of Consultants by World Bank Borrowers. May 2004

financial models etc) has been carried out. This translates into greater preparation time. In case of latter approach, even though it fosters greater innovation in solutions, it requires longer tender time. It also requires highly professional procedural regulations for tender process itself to make sure that all bids are fairly evaluated.

4.9.3 **Evaluation Criterion** PPP projects are governed by project finance principles i.e. project revenues sustain the project. Accordingly, authority responsible for concession programme has to take into account the soundness of financial arrangements and commercial feasibility of the offer. It is also imperative to check the reliability of the technical solutions proposed both for the construction and operational phase. Such approach is warranted even in cases where no government guarantees or payments are involved, because unfinished projects or projects with higher maintenance cost have negative impact on overall availability of services and on public opinion.

4.9.4 **Negotiation with the bidders** will generally happen in case of large projects especially given the fact that concessionaire is usually chosen first and the financing arrangements (financial closure) are put in place later. The complexity and long duration of the concessions makes it extremely likely that two parties agree on the terms of contract without negotiations and adjustments. There is need to carry forward these negotiations in a transparent manner and without vitiating the original basis on which the competition is carried out.

Other Related Issues

4.10 Pre-qualification is an important step of restrictive competitive bidding process. The governments aim to select a concessionaire who has the technical capability to operate the concession successfully. They do not want to award the concession to such a person who may offer a best deal on paper but fails to deliver what was promised. One way of making it happen is to design the contract in such a manner that it is attractive to only such concessionaires who are confident that they will be able to deliver the service parameters successfully. Imposition of stiff penalties for poor future performance, having

performance bonds to cover such penalties can be incorporated into the concession agreement. This system can work if the poor performance standards are objectively observed and the bidders have belief that they shall have to forfeit their performance in case of default. However in reality, this may not be a reasonable deterrent for an overenthusiastic operator. It is for this purpose that governments resort to prequalification to weed out unsuitable firms.

4.11 Different governments have used prequalification steps in a two different ways. These are:

- Project specific prequalification and short listing
- Registered lists (Empanelment)

The former is more commonly used and is related to a particular project in which the prequalification criteria are derived on project specific information. In the latter method, the governments prequalify such participants for a host of projects that are likely to come up in a near future. This list does get updated from time to time and usually has fixed time validity. The important advantage in second method is time saving effected in the tendering process.

4.12 One issue to be considered in pre-qualification is the timing of prequalification. There are two variants:

- Prequalification before release of bidding documents (Early prequalification)
- Prequalification before submission of the actual bids (Deferred prequalification)

4.12.1 Early prequalification has advantages that it formalizes the discussions with potential bidders, since only prequalified bidders receive bidding documents of comments, undertake due diligence and participate in the bidding. This gives rise to enhanced transparency in the selection process. But the drawback in this option is that it forces potential investors to form consortia early on in the process and greatly reduce their flexibility of changing consortia partners during preparatory phase. This is so because the governments want to restrict any reorganization or merging of consortia after prequalification stage to prevent collusion between bidders and to maintain sufficient number of bidders.

4.12.2 In Deferred prequalification, the potential bidders must prove that they meet qualification criteria at the time of bid submission. In the event of their failure to meet the stated criteria, they are disqualified from the bidding. This system gives additional time and flexibility to bidders to form consortia. On the downside, it gives rise to uncertainty about the number of groups likely to submit the bid. As stated earlier, presence of large number of bidders may deter some investor from incurring the costs of preparing a bid.

4.13 Transfer of Concession using "Step-in-Rights" is an important contractual right usually given to a lender to the project in PPP concessions. Most concessions are financed through project finance.[29] In such financial arrangements, often the financing institutions (lenders) reserve the right to replace the project manager or to appoint a new manager, if the financial flows generated by the project fall below a certain level. Such rights are defined in the "Step-In" clauses of concession agreement. Implementation of such clauses can result in the changing of private partner without calling in for any competition.

A possible solution is to allow transferability to another operator with the approval of government subject to the new operator satisfying the original pre-qualification criteria.

4.14 **Transfer of Ownership** is another important issue. Concessionaires sometimes like to offload part of the equity as the concessions mature. There may be several reasons for this, e.g. keenness to raise cash for new ventures, shifting out at operations stage as the profits margins are squeezed or simply to encash the profits. Internationally too, there is an emerging secondary market for both debt and equity instruments used in PPP finance schemes.[30]

4.14.1 The contract awarding process for a PPP is not meant to simply assess the quality of bids and bid price alone. It also has to consider the competence of tendering organizations to deliver the procured services during operation stage. Subsequent transfers of ownership undermine

[29] Some highway projects do attract corporate financing. The world highest bridge "Viaduct du Millau" in France has been constructed on BOT basis by EIFFAGE purely through corporate finances.
[30] *Investor's Chronicle* (UK), 28 November, 2003

seriously PPP contract awarding process and the validity of criterion used for evaluation.

4.14.2 Usually, the governments insist on lock in period for the equity participation by the lead member of the consortia during construction period and sometimes during the operations phase as well so that basis of the original choice remains. Another possible solution is to allow transferability to another operator with the approval of government subject to the new operator satisfying the original pre-qualification criteria.

4.15 **Bid Structure-"Double Envelope System":** Many governments adopt a two-stage bid process either in the place of or in addition to a prequalification round described above. In this, bidders make two offers; one, for technical proposal containing business and investment plans and second, commercial one. The treatment of two offers, either sequentially or simultaneously, gives rise to several variants.

4.15.1 In one such variant, the Technical proposals are evaluated first and the commercial bid of only those bidders is opened whose technical proposal clears the evaluation screening. The winning bid is selected on the basis of being the most economically advantageous from among those who had passed the technical proposal.

4.15.2 As an alternate, weightage is assigned to both technical and financial bids and two proposals are evaluated jointly.[31] The main drawback of this is involvement of considerable discretion and judgment on the part of the evaluation committee. Furthermore, the experience has shown that changing market forces subsequent to contract award often require considerable (and mostly justifiable) changes in the investment and business plans of company. This greatly reduces the meaningfulness of evaluation process used, which had relied heavily on the assessment of proposed business plans.

[31] A good example is Argentine freight rail privatization procedure. The bids were evaluated on the basis of weighted criteria :proposed investment plans (30 points), promised investment plan (5), organizational plan (25), maintenance plan (8), concession fee to be paid (12), payment required by the passenger trains for trackage rights (5) and number of personnel to be retained from the public company (15)

4.15.3 In a different format, technical bids are called in to provide only the legal documentation to meet the standard bidding requirements alone. This is in the case where the governments make elaborate project definitions limiting or rather standardizing the technical specifications on which all the bidders give tenders. This format is used to remove the element of discretion and judgment on the part of evaluation committee. However, it comes at the cost of innovation of project solutions and may not fetch the best value for money.

4.15.4 In another variation, technical proposals are used to do pre-qualification (in case of prequalification process was not entered into earlier) or to reduce the number of prequalified bidders that advance to financial evaluation stage. Such technical proposals contain details on technical and financial capacity and experience, which can be measured against prescribed thresholds.

4.16 Selection procedures associated with PPP are usually long drawn out. There are usually publicity requirements, varying from country to country, associated with competitive bidding[32]. There are several other contributory reasons also.

- First, the preparation of bid itself requires sufficient time for completion.
- Second, the evaluation process depending upon the responses and the array of evaluation criteria takes a long time. Often, clarifications are required from the participants on their hypothesis, each bid has to be examined for its technical and financial robustness.
- Third, due to complexity of interdependence and relationship of various players, it is not often that every player agrees to drafting of concession agreement. It is not unusual to have detailed negotiations for concluding such concession agreement.

However, the time associated with bidding process cannot be allowed to be open ended as it increases the cost of both parties of PPP. It is a good practice to indicate the timetable for various events as a part of the bidding documents. This helps to keep the processes under time control and discourages endless rounds

[32] For example in France, this requirement is of 45 days.

of agreements. For example, the indicative timetable used in Ireland and India for procurement in PPP both for restrictive as well as negotiated contracts is depicted in table 8.

Table 8: Indicative Timetable for Public Private Partnership Procurement

Procurement Phase	**Restricted Procedure Ireland Target Completion (cumulative days)**	**Negotiated Procedure Ireland Target Completion (cumulative days)**	**Restricted Procedures India Target Completion (cumulative days)**
Dispatch contract notice	0	0	0
Latest date for receipt of expression of interest	37	37	28
Issue prequalification documentation	38	38	29
Receive prequalification submissions	70	70	60
Short list of tenderers or bidders	100	100	67
Issue Invitation for Tender or Negotiate	130	130	70
Receive responses from tenderers or bidders	220	220	91
Clarification or negotiation with the tenderers or bidders	250	310	
Selection of preferred tenderer or bidder	280	340	98
Clarification or negotiation with preferred bidder	300	480	
Award Contract	390	540	100

Bidding Rules & Procedures

4.17 In order to ensure transparency and most economical outcome of the bidding exercise, the design of the bidding rules and procedures is of great importance. Important design issues are:

- Use of reserve price[33]
- Sealed vs. Open bidding
- Simultaneous, Sequential, and Multiple Round Bidding
- Earnest Money- Bid Bonds
- Cost Sharing

4.18 **Use of Reserve Price:** This is used to measure the efficiency of procurement i.e. to compare whether the economic terms granted to concessionaire are lower or match the terms finalized *a priori* by the public authority. A well-designed competitive bidding process should yield the true market price without the need for a reserve price. However, governments, especially in the developing countries, consider it necessary on account of two factors:

- To safeguard against collusion amongst the bidders which would yield below market bids;
- And secondly, to maintain public credibility.

4.18.1 Announcing the reserve price does tend to enhance the credibility of selection process and improves its transparency besides giving additional information to the bidders. However, Public authorities often end up setting too low a reserve price without clearly discounting the risks transferred to the private partner. This tends to distort the perception when the bids far exceed the announced price. The aim of reserve price should be not to provide best estimate of the winning bid rather it should be to define a justifiable level which would encourage fair number of bids. This in turn would ensure a market outcome.

[33] In Private finance Initiative program of UK government, this price is called Public Comparator Cost. This is the total cost of the project inclusive of all risk costs, which are sought to be transferred to Private sector.

4.18.2 There may be other cases where it may be preferable to keep the reserve price confidential; for example, if there is likely to be only one bidder.

4.19 **Sealed Vs Open Bids:** Generally, governments seek the bids in sealed form. It ensures confidentiality and it is assumed that the end result is the best market result. Such bids are opened in public forum. It has been seen that in sealed bidding the spread between the bids is substantial which underlines the fact that such bids test the risk taking ability of the bidders rather than realistic evaluation of the project cost.[34] The main advantage of having sealed bids is that it restrains collusion between bidders because no one is really sure what the sealed bid actually contains i.e. whether the price is same, as colluded price or some defection has occurred.

4.20 However, on the other side, the game theorists argue that the open auctions produce the best results because those induce more aggressive competition and yield higher returns in most circumstances.[35] It is further argued that in sealed bid system since the contestants have no information on the other bidder's estimates, there is greater likelihood that "winner's curse" will happen i.e. winner is the looser for having grossly underestimated the costs out of ignorance. Such open auctions using electronic means are being routinely used in modern day world and several web sites, which are devoted to this mechanism, are reporting turnovers of billions of dollars[36]. Such auctions, even though rare in grant of infrastructure concessions, have already been used in award of radio spectrum in US for mobile telephony.

For a government to introduce open auction for commercial offers is a fair decision if the number of bidders is sufficient, there is less chance of collusion between the bidders and bidders are experienced with similar projects.

4.21 **Simultaneous, Sequential, and Multiple Round Bidding:** When a series of similar concessions are being launched together for bidding, holding such bids in a simultaneous or sequential manner becomes a major issue.

[34] In the Peru's telecom privatization, the difference between winning bid and second bid exceeded US $1.1 billion ($ 2 billion against $ 850 million). Similarly in India for distribution of some of mobile telephone circles, the spread between winner's bid and second bid exceeded by 100% (US $425 million vs US $ 200 million)

[35] John MacMillan "Games, Strategies, and Manager" 1992, Page 133-149

[36] Ebay reported turnover of US $2.33billion for the nine months ending September,2004.

4.21.1 Usually the governments like to impose conditions on degree of concentration (to avoid monopolistic tendencies to develop if one operator get more than one concessions). The bidding rules have to be very specific about how the winner shall be determined in the event of one operator offering most economically advantageous terms on more than one concession.

4.21.2 It is also possible to have sequential round of bidding to avoid same operator bidding lowest for two or more concessions. In such a scheme, the most attractive packages are bid first to reduce the bidder's uncertainty.

4.21.3 Another procedure is to hold simultaneous auctions spread over multiple rounds. Here bidding is spread over several rounds. Bid results of each round are available for all participants to see. They use it continuously to evaluate their strategy and preference in light of their competitor's bids. This kind of bidding is eminently suitable where several concessions are being offered simultaneously and such awards can produce incremental benefits by introducing economies of scale.[37] Such bidding procedures use certain rules like minimum activity level, minimum bid increments, maximum time for each bid stage in order to conclude the process within a reasonable time. However, these biding procedures entail higher transaction costs and take longer time to be concluded.

4.22 **Earnest Money- Bid Bonds:** Governments use bid bonds to make sure that bids are serious and remain valid till contract award i.e. that the bidders are earnest in theri offer. The bid amounts vary from government to government ranging from nil to as high as 5% of the transaction cost. As the range suggests, the amount of bid amount is often suggestive of the economic viability of the project & credibility of grantor rather than measure of earnestness of the bidder.

4.23 **Cost Sharing:** Preparation of bids for infrastructure projects is quite high with reported transaction cost being 5 to 10% of the project cost. Such high costs often deter potential investors from entering with arena with a serious well-crafted

[37] This methodology was adopted to award in second round of Mobile telephony licenses in India.

bid. Though prequalification and short listing of potential bidders helps by increasing the chance of bidding, these still do not reduce the cost of preparing a bid.

Some governments have adopted cost sharing mechanisms to defray bidder's costs in preparing and submitting bids.[38]

Selection Procedures followed at NHAI

4.24 NHAI, which has the mandate of letting out concessions of National Highways, uses only restrictive competitive bidding for award of those. Prequalification is done at the start of bidding process. In the Post NHDP Project, however empanelment of potential bidders has been done. The second stage of bidding is open to the persons on the registered list. Following a prequalification round, a two-stage process for selection of the preferred bidder is adopted.

4.25 The first stage of the process involves qualification of the Applicants. For prequalification or empanelment, Expression of Interest is sought from potential participants through wide publicity. During this Qualification Stage, the applicants are invited to furnish the specified information. At the end of this stage, NHAI announces a shortlist of suitable Applicants for the next stage (the "Proposal Stage"). No restriction is placed on the number of short listed participants and everyone who meets the threshold criteria qualifies to participate in the next round. All such pre-qualified participants would then be invited to submit detailed proposals.

4.26 During the Proposal Stage, short listed Applicants are expected to examine the project in further detail, and to carry out such studies as may be required to submit proposals for the implementation of the project. The Pre-qualified Parties who eventually bid in the proposal stage, are evaluated on the basis of technical and other submissions relating to the project and the financial bids.

4.27 Other salient features of the procedures adopted by NHAI are:

- There is no mandate for NHAI to enter into negotiated contracts.

[38] In UK, PFI offers such arrangements in projects where the bidding costs may otherwise discourage potential bidders from participating . For example, bidding costs were refunded in the competition for Channel Tunnel Project.

- Concession agreements are finalized upfront and are not open for negotiations after the bidding has begun. However, before the bids are made, bidders are encouraged to seek any clarification on the various provisions and the risk-sharing matrix defined in the draft concession agreement. Subsequently, unqualified and unconditional bids are sought and should a bid differ substantially from the parameters set in request for proposal document, it is rejected as being non-responsive.
- Objectives of the contract and the means to achieve those are fairly well defined out for the road project. Though, NHAI does advise that following of detailed project report prepared by it, and released as a part of bidding documents, is only not binding on the bidders. The bidders are advised to make their own assessments about project. However, the elaborate project definition leaves very little scope for innovation in solution providing.
- All costs are generally borne by the bidder regardless of the outcome of bidding. NHAI does not share the cost of bid preparation.
- Project cost is disclosed in the bid document. This is used to cap the maximum amount of support that the government is prepared to provide to bridge the commercial "viability gap" which is also made known to the bidders upfront. Usually a cap is provided at 25% of the project cost, but this cap can be increased to as high as 40% depending on the discretion of NHAI.
- Bid security is a norm. Usually it is equivalent to 2% of the project cost. In case of simultaneous bidding for several concessions and where the bidder is participating in more than one bidding, this is reduced (on percentage basis and is equivalent to Rupees 1 crore (0.5%) for ever Rupee 200 crore higher slab increase.
- Performance security is also required from the winning bid.
- In addition, the minimum equity participation is sought at 51% during the construction period and three years after the commercial operations begin. Thereafter, it can be reduced to 26%.
- Usually, a singular parameter is used to evaluate bids. i.e. lowest grant, least present value of payments sought from government etc.

- There is no formal restriction on number of concession that a particular bidder can secure. But this is controlled by his bidding capacity, which is calculated through a formula. When a bundle of contracts to be awarded together, and if a contract can not be awarded to a particular bidder who is otherwise most preferred bidder, the concept of "Least Cost to NHAI" is adopted by NHAI. This concept implies that the contracts are awarded based upon the theory of collective cost of all the projects to NHAI being the lowest.
- NHAI carries out limited negotiations with the preferred bidder (most economically advantageous tender)alone, seeking clarifications on some aspects of tender or confirming commitments included in the offer, seeking a goodwill discount. No alteration of any fundamental elements in the tender is done.
- During negotiations, NHAI can legally go to the next preferred bidder (say, L2) only if there is a minor technical flaw/ snag/ shortcoming in the bid of the preferred bidder (L1) which is sought by NHAI to be corrected through negotiations. In case L1 bidder is unable to remove this flaw, only then can NHAI go to the next bidder, namely, L2. Otherwise, NHAI are bound to accept the bid of L1.
- NHAI does afford complete confidentiality to the prospective bidders except when it is asked to divulge Information (relating to the examination, clarification, evaluation, and recommendation for the bidders) by any authority that has the power under law to require its disclosure.
- NHAI usually reserves the right to invite revised Technical and/ or revised Price Proposals from bidders with or without amendment of the bid documents at any stage without liability or any obligation for such invitation and without assigning any reason.
- NHAI usually reserves the right of cancelling the entire bid process at their discretion, without necessarily informing the participating bidders the reason for the same.

Selection Procedures adopted in Punjab

4.28 Punjab has also adopted competitive bidding mechanism similar to one adopted by NHAI. A two-staged process is adopted for selecting the concessionaire by PIDB. There is initial project selection process. Upon approval of the project by the Board, a publicity notice for Invitation for Tenders is issued. As per clause 32(1) of Punjab Infrastructure (Development & Regulation) Act 2002 "***Upon finalization of the scope and structure of the infrastructure project., the Board shall forthwith cause to be published, one every week for three consecutive weeks, …… a notice inviting all interest parties to participate in a competitive public bidding for the infrastructure projects….."***

4.29 All participants of first stage who meet the threshold criterion are qualified to second stage. There is no restriction on the number of bidders who can participate in second stage. (Clause 33(4) of ibid Act).

4.30 There is no clear mechanism for negotiations. However clause 36 of the ibid act states ***"Negotiation shall be resorted to when there is only one qualified bidder"***

4.31 There is a mechanism of handling the unsolicited bids patterned after Swiss challenge. Clause 37 of ibid act states "***When any person makes a representation to the Board with respect to any project, which has not yet been approved or notified in terms of the provisions of this Act, the same may be accepted by the Board on a provisional basis; if such a project involves a new concept or technology***". However, Board has to buy out the proposal from such a person on payment of sum mutually agreed upon between the two parties. Thereafter, the proposal shall be competitively bid out in which the original proposer may also participate. In case of proposer not being the preferred bidder, he is given an opportunity to match within 30 days the offer of preferred bidder else the concession is awarded to preferred bidder.

Suggested Improvements in NHAI Procedures

4.32 NHAI has adopted a procurement procedure for BOT works, which is derived from traditional procurement methods. It is essential restrictive competitive bidding and without any substantive negotiations. Perhaps unintended, it primarily aims for low bid selection, which involves only cost comparison of non responsive bids from responsible bidders –value rather than Best Value selection which involves the evaluation of technical and, management factors in addition to cost. However, best-value selection- using transparent and uniform processes, enhances competition and innovation. In PPP procurements, the business culture and quality, which though can best be evaluated subjectively only, are weighted much more significantly than the price and technical portions of the procurement. Therefore, some aspects of current procedures may need a rethinking and revaluation to strengthen the selection methodology.

4.33 **Negotiated Contracts:** At present, NHAI does not allow for negotiated contracts. As has been accepted by the governments world over[39], it may be a good idea to have direct negotiations "where the private sector proponent has offered the Government a proposal which embodies a unique and proprietary concept as an essential component of the proposal and where the proposal is cost effective when measured against the Government's bench marks. "

4.34 **Prequalification stage:** Currently, NHAI does allow all the persons who make the prequalification criteria to participate in the final bidding. Though, final participation is restricted by what is termed as bidding capacity of the participant. This does not, however, restrict the actual number of participants in the bidding process. On the other hand, there is a substantial merit in restricting the number of participants in the final bidding stage. The participants can only prepare detailed submissions if they have a reasonable chance of success otherwise they shall simply rely on the available information. [40] Otherwise, the final bids are likely

[39] The United Kingdom and the Australian State of Victoria are early examples.
[40] Such detailed submissions in the end help making the agency a more informed choice of a concessionaire and the product specifications to be delivered by him.

to vary by the risk premium factor applied by the various bidders alone rather than due to any major innovation in design delivery or methodology.

One way of restricting the number of final bidders can be to prepare a sorted list of prequalified bidders. This can be based on the chosen evaluation criteria; it can be financial capacity or experience or a weighted average of both. This implies that even if a person is able to meet the threshold criteria (and therefore may be on the registered list of empanelled bidders), the final bidding shall be restricted to top few say three or four prequalified bidders who chose to participate in the process.

4.35 There should be a conscious effort of giving a reasonable time for the bidders for bid preparation. NHAI typically gives 7 weeks for bidder to put up their bid. Though this timetable is frequently extended, it is may be unrealistic to have innovative solution with such short time interval for final bid. Shorter timetables only encourage traditional solutions. It is fair to give at least 2 clear months to prepare the bid after the final pre-bid meeting. This shall give more time to the bidders to conduct the related studies and undertake realistic project optimisation. A possible outfall of this approach can be reduced price bids.

4.36 There is restriction on the equity dilution on the part of concessionaire during the construction phase and three years following the commercial operations date. Thereafter, contract can change hand without further permission from the government. Given the fact that elaborate exercise is carried out initially to identify a operator who will deliver not only on construction of the asset upfront but will also perform during the maintenance and operation phase, it shall therefore, be prudent to dissuade the dilution of such equity without government approval.

4.37 For simultaneous bidding out of several concessions, it will be useful to combine the bid packages where one more commercially viable reach is clubbed with another no so commercially viable one. This cross subsidisation shall be able to build the network more efficiently while remaining within the subsidy cap limits of 25%. This process will effectively imitate the ‘backing up’ mechanism adopted by France in building up its network. This bunching, however, might be restricted due to geographical dispersal of projects.

4.38 The necessity of seeking earnest money should be reviewed especially when on the symmetrical manner NHAI reserves the right to call off the bidding process at any stage. This provision adds to the cost of bidding without lending any material benefit to the overall process. Since the bidders invest substantial resources, both financial and manpower, into bid preparation, this cost itself should be treated as proof of seriousness on the part of bidders. However, performance security both during the construction phase as well as operation phase is a good idea to ensure delivery of promised services in the first instance and continued adherence to stated objectives at a later date.

Suggested Improvements in Punjab selection methods

4.39 In Punjab, the final bidding process is yet to commence. However, the points mentioned in NHAI case are equally valid for Punjab scenario especially regarding number of bidders. A similar mechanism needs to be used to restrict the number of final participating bidders to have overall well designed bid.

4.40 Since Punjab is likely to use only a single bid parameter or one with a sizable weightage to decide the final outcome, it would be useful to try out open auctions using electronic processes. This may be especially useful in regard to least present value of revenue structure of financial proposals. (LPVR are described in greater detail in Para 5.49). Since in LPVR the bidding element is the income required to earn a normal return, there is much less possibility of “a winner curse” happening.

V BID EVALUATION CRITERIA

5.1 Generally, restrictive competitive bidding is used for selection of the concessionaire as it has built in incentives for bidders to come with most economical offers for grantor. However, given the complexities of such projects, it is very difficult for the governments to compare and evaluate different bids. Primarily, this difficulty arises out of the fact that there are many variables having a complex interplay amongst each other thus making one bid different from the other.

5.2 In public procurement, the aim is to make the selection as fair and objective as possible. This fairness and objectivity should be derived largely out of the process of selection of concessionaire instead of relying on the integrity of the persons who control it. When the tender criteria are not clearly established or are based on subjective concepts, the grantor shall face greater difficulty in awarding the project while the bidders will be unprotected against arbitrary treatment.

5.3 Thus, it is imperative that a suitable methodology is developed to select a concessionaire that provides the best commercial offer and has the overall capability to deliver the works and services. At a later date, this also goes a long way in reducing opportunities for renegotiations and thus has a lock-in effect on operator.[41] Therefore, having a suitable and simple tender evaluation method and clear and objective tender evaluation criteria is very important.

Types of Tender Evaluation Methods

5.4 Overall approach to evaluation is dependent on government's objectives, the framework of bidding and the level of detailed availability of information on the potential socio-economic impact of the project. The basic purpose of all tender evaluation process is to assess

- Value for money for the government
- Technical feasibility and compliance of bids
- Financial feasibility and compliance of the bids

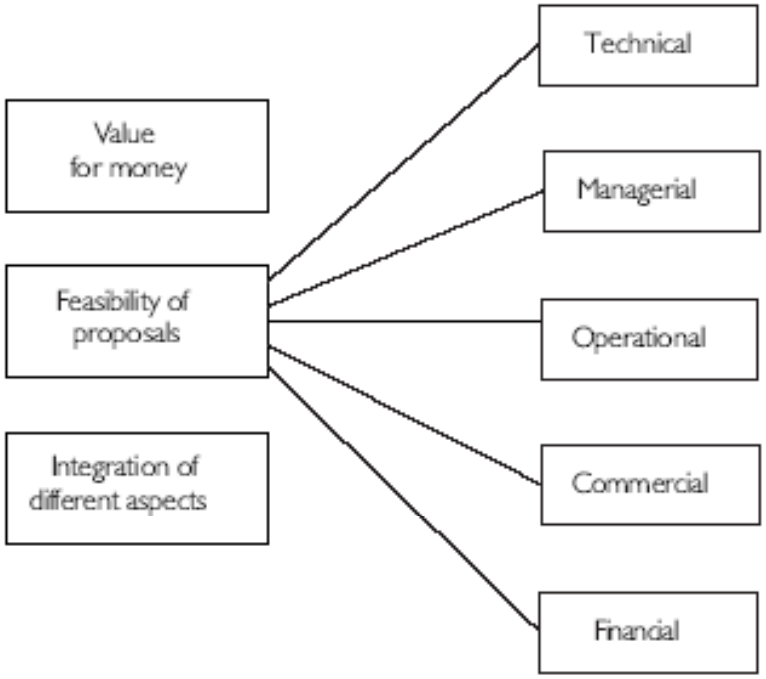
[41] World Bank Policy Research Working Paper 3129 (August 2003), Page 15

The objectives of evaluation criteria are depicted in figure 16.

5.5 Different types of tender evaluation methods have evolved by integrating these elements in different ways. Various types of Tender Evaluation Methods used for evaluating the bids relating to PPP projects are:

- Simple Scoring method
- Net Present Value (NPV) method
- Multi-attribute analysis
- Kepner Tregoe decision analysis technique[42] or Must/Want Analysis
- Two Envelope method
- NPV method + scoring method
- Binary Method + NPV method

Figure 16 : Objectives of Evaluation Criteria



5.6 **Simple Scoring method:** In this method, maximum score are assigned to each predetermined selection criteria. The participating bids are evaluated and a score is assigned to each tender against each criterion. The scores vary from 0 to

[42] *The new rational Manager* - Kepner, C.H., and Tregoe, B.B (1981)

maximum possible. The total score is aggregated and the tender with the highest score is the preferred bidder.

5.7 **Net Present Value (NPV) method** is one of the commonly used methods in BOT works. Such method, however, require a high project definition i.e. objectives of the contract and means to achieve those have to be strictly defined so that the submitted design are similar or comparable. For such conforming or equivalent tenders, the NPV of tolls or any other financial parameter over the concession period is compared and the bidder with the lowest NPV is the winner. This method is however more suitable for concessions where there are fairly correct estimates of services i.e. those based on off-take agreements in power or water treatment plant concessions. NPV of other variants like construction, operation and maintenance costs, and finance charges over the concession period (and even for the whole life of Project) are also used for further evaluation.

5.8 **Multi-Attribute Analysis** : Group attributes are used to classify various criteria; for example, financial, managerial, technical and environmental can be such attributes. These attributes are assigned different weightages according to their relative importance. Within the main attributes too, weightages can be assigned to different criteria. Each tender proposal is evaluated against every criterion and awarded a score that is corrected by weightage factors. The highest weighted aggregate scoring bid is the winner.

5.9 **Kepner Tregoe decision analysis technique or MUST / WANT Analysis** :

5.9.1 This technique has several decision stages described as follows.

- Formulation of decision statement
- Identification & weightage to decision objectives i.e. defining MUST or WANT criteria
- Generating alternatives (by inviting proposals)
- Evaluating alternatives against the MUST and WANT criteria
- Selecting the most suitable alternate

5.9.2 The first step of formulation of decision statement sets the focus for the following steps and sets limit to selection. The specific requirements of decision-making are covered in MUST and WANT criteria. The MUST criteria

are used for screening out alternatives by a "Yes-or-No" judgment. In the next step, the remaining alternates are evaluated by assigning relative scores against the WANT criteria. These scores against the WANT criteria are used to make comparison chart and help making the final choice. Commonly used decision statements, MUST and WANT criteria are given in Table 9.

Table 9: Commonly used Decision Statement, MUST & WANT Criteria

Commonly used statements	Select the tender that offers the best overall value for money Select the tender that offers the most attractive financial package and most effective technical solution Select the tender that is best researched overall in the technical and financial aspects of the project
Commonly used MUST criteria	Tender must be complete and must comply with the tender guidelines The proposed concessionaire must have proven capacity (financial and technical) and experience in construction and operation of similar projects The proposed concessionaire must have a local company in its team
Commonly used WANT criteria	Degree of attractiveness of financial package Financial returns to government and benefits to community Relative soundness of technical solution for project implementation Relative experience and expertise of the promoter in similar projects Degree of environmental impact

5.10 **Two Envelope method:** In this method, the technical offer and the commercial offer are submitted in two different sealed envelopes. Tenders are evaluated on non-price criteria first and a comparison chart is prepared. *Only* the commercial offer of highest scoring Tender on technical parameters is opened. This price is

compared with the government's price, which is not known to the tenderers. In case the price is within the government's budget, the contract is awarded to the highest scoring tender. In this method the focus is on seeking best alternate at the government's pre-determined level of financing.

5.11 **NPV method + scoring method:** In this method, NPV is used for financial evaluation while the weighted point scoring method is used for qualitative evaluation. The process of evaluation is two staged. The set of criterion to be used for qualitative judgment are assigned weights. The technical proposals are evaluated against a set of criteria and given weighted scores. This evaluation is combined with the financial evaluation in a predetermined ratio to make a comparison chart of the offers.

5.12 **Binary Method + NPV method:** The process of evaluation is two staged. In the first step, the technical proposals are evaluated against a set of criteria. This simple pass-fail approach is used to remove incomplete or non-responsive tenders from the process. For moving on to second stage, the proposal should pass the screening of first stage. In the second stage, financial offers are compared on the basis of NPV method.

Evaluation Criteria during Prequalification process

5.13 In a restrictive competitive bidding process, there are two distinct phases where there is a need of evaluation criterion. These two phases are, first, prequalification phase and second, the final bidding stage.

5.14 The purpose of prequalification is to weed out unsuitable firms from the process of final bid participation. Prequalification is used to reduce the number of bidders and thus stimulating the qualified firms to prepare good proposal. Thus, the criteria used during prequalification are threshold variety i.e. they prescribe certain minimum degree of experience or capacity. While it may be the endeavour of the government to attract the best that the market has to offer, it is good idea to assess the market appetite by mounting a preliminary road show promoting the government program. This helps to gauge the depth of market and in turn is extremely useful in fixing the criteria at such levels as to ensure sufficient number

of bidders. This may not be essential, but may avoid a situation where there are no interested bidders who qualify because the prequalification criteria were too high.

5.15 A particular factor that is to be kept in view while setting out prequalification criteria is that road sector is considered to be a natural monopoly- i.e. services in this sector can be provided more cheaply by a single firm than by two or more. Competitive bid concessions allows to introduce *competition for* the market as *competition in* the market is usually absent. In such a scenario, having large number of operators on the same network may not enhance the overall benefits to the conceding agency. Many of the criteria used in the prequalification rounds thus reflect the size of operations and the objective of the government in keeping the number of players in the market restrictive. Table 10 shows the number of operators in road sector in different countries.

Table 10: Number of Toll Road Operator's in Various Countries[43]

Country	**Number of Highway Concessions/ operators**	**Length of Tolled network**
Austria	5	2000
Spain	30	2612
France	11	7896
Greece	1	916
Italy	24	5593
Portugal	4	1244
India	31	1383

5.16 The definition of optimum size of a concession is an open question and lies in the government domain. Bigger size of concession lots has a key advantage of reducing the management costs that are customarily high for concessions. It also

[43] Source: ASECAP. Indian figures are from NHDP alone. The number is likely to atleast triple after culmination of Post NHDP project.

enhances the productivity on the part of construction contractors due to optimal utilisation of plant and equipment. Another aspect that suggests that larger lot sizes may be better is the possibility of combining profitable and not so profitable sections.

5.17 The criteria used during the prequalification stage usually relate to the following:

- Experience as a Toll operator
- Technical capacity
- Financial capacity
- Form of participation in concessionaire's company

5.18 **Experience:** Government generally seek bidders with past proven track record in the field. Degree and experience required is dependent on the project size and sovereign risk associated with the market. Since the number of operators is rather limited and further due to complex nature of concessions, they reduces their usual area of operations to limited geo-political zone. Therefore, such criteria are usually tailored to specific situation whereby smaller concessions having less stringent requirements while bigger concessions have more rigorous criteria. This ensures that enough number of bidders are able to make the threshold level and the sufficient number do prequalify to compete for the award which is the basic aim of bidding process.

While assessing the experience of a firm's prior experience, it is useful to review company's past performance data, regulator's report, (Independent) customer's surveys showing the level of public satisfaction with the service provided.

5.19 **Technical Capacity** is a measure of the ability of the future operator to be able to deliver the project and then be able to meet the performance standards during the operation phase. Often demonstrated capacity in designing, building and maintaining and operating a toll road is used for this purpose. On smaller concessions, these elements can be separated to be able to have sufficient number of prequalified bidders. The previous experience in different fields is weighted to get a quantitative equivalent; for example, construction experience in

roads or other infrastructure can be equated to the experience of operating a road by multiplying it with a suitable weightage factor.[44]

It is a good practice to use the figures used for quantitative evaluation, which are reliable and verifiable (like certified billings, audited operational revenues)

5.20 **Financial Capacity:** The financial capacity of the bidder can be measured by prescribing minimum norms of net worth[45]. Demonstrated capacity of the bidder to undertake similar projects can similarly be used.

5.21 **Form of participation in concessionaire's company:** In order to ensure successful implementation of the concession, it is usual for governments to specify that an experienced operator should have a long term stake in the concessionaire's company. This is done by insisting on majority or significant share in the equity of bidding consortia.

Evaluation Criteria during Final Bidding Stage

5.22 The overall approach to evaluation of a bid is dependent on the government objectives. Typically, the bids are invited in two parts .

- Technical bid, covering all technical designs, construction, and operation related aspects as well as safety, environmental & managerial aspects of the offers.
- Financial bid

5.23 **Technical Proposal Evaluation Criteria:** The technical proposal evaluation aspect shall include:

- Whether the bidder's technical and management proposals are likely to meet the performance specifications.
- Technical and design risks of the proposal.
- The proposed construction costs, their timing and likelihood of their attainment.
- The proposed operating and maintenance costs, and the likely hood of their attainment.

[44] In NHAI, India, experience of constructing a road is weighted by a factor of 0.67 to be made equivalent to experience of being a toll road operator.
[45] Net worth is the difference between the company's assets and liabilities

5.23.1 Project definition has a direct bearing on the technical proposals and accordingly the technical criteria to be adopted in the selection procedures. When project definition is limited to the objectives without strictly defining the means to achieve those, the bidder's technical proposal and associated technical and design risks are significant and hence the technical evaluation shall matter more. On the other hand when the technical specifications are frozen, the weightage associated with technical proposal diminish.

5.23.2 Other parameter that structures a technical proposal is the specifications imposed with respect to performance targets. These can relate to, for example, construction time, coverage ratios, minimum investments required, output quantity, safety standards etc. While it is not possible to quantify all such criteria, yet effort has to be made to establish evaluation criteria wherever possible.

5.23.2 However, it is important to note that technical proposal often tend to change during the implementation phase due to changing market conditions, hence over-dependence on technical evaluation of proposal early on tends to reduce the meaningfulness of the selection procedures.

Various Technical Criteria packages that can be used are included in Table 11.

5.24 **Financial Proposal Evaluation Criteria:** Financial proposal can be structured in several ways. Primarily, this structuring is determined by the risk sharing profile adopted in the concession agreement. –transferring of risk form public partner to private players being essential characteristic of a concession contract. The risks associated with a concession are political and legal risks, technical risks, commercial risks and economical and financial risks.

5.25 Some of the commonly used options for seeking a financial proposal include bidding on:

- The highest concession fee (either one time or annual) to be paid to government.
- The lowest subsidy/grant/subventions (either one time or annual or in instalments) to be paid to concessionaire by the government.

- The lowest cost to the government for constructing or operating the facilities or services.
- The largest amount of new investments to be undertaken by the concessionaire.
- The lowest tariff/toll to be charged from the user.
- The lowest net present value of the future revenue stream to the developer from the service or project.[46]
- The minimum length of concession period.

5.26 Financial bids can be structured by using one or combination of some of the options listed in Para 5.26. [47] However, the aim should be to make the financial bid as simple and transparent as possible so that bid award is automatic and it should promote economic efficiency.

5.27 Another important issue to be used for evaluating financial proposal is related to *Refinancing* of the concession at a later date. The construction period of a PPP project carries a much higher risk factor than the subsequent service delivery period. The Concessionaires do take advantage of the potentially lower cost of borrowing, (as the contract enters maturity -moving from the establishment phase to the service delivery phase), by refinancing the loan - equivalent to a householder cutting home loan costs by re-mortgaging when interest rates go down). This is usually factored into the calculation of tendered bid. But the evaluation procedure should be able to clearly establish the basis (cost of financing, proposed debt equity structure) from which the gains in refinancing can be captured by the government at a later date as and when the concessionaire refinances the contract to make use of cheaper finances.[48]

[46] There are two variants to this bidding option. In one, the concession period is fixed. In other option, the concession period is not fixed and will be adjusted endogenously accordingly to realization of demand. This system is called Least Present Value of Revenue (LPVR) auction removes the market risk for the operator while eliminating the need for traffic or revenue guarantee from the government.

[47] In Chilean road concession programme, concessions were granted for fixed tenures to a person offering least toll rates. However, the toll rate structure itself had ceiling and floor imposed on it. In the event that ceiling is too low, then the winning concessionaire was one who sought least one time subsidy from the government. Alternately, if the floor was too high, then the concessionaire offering biggest payment to government would win.

[48] In UK, the Fazakerley prison PFI contract enabled contractors Group 4/Carillion to obtain a windfall profit of £10.7m upon refinancing. Subsequently, the Office of Government Commerce UK issued a report in November 2002 recommending that with old deals - where no agreements were in place - any refinancing windfall profits should be split 70/30, to the benefit of the contractor. But on new deals, contracts should specify a 50/50 division of

Table 11: Tender Evaluation Criteria Packages for PPP Projects in General[49]

Financial	Technical	Health, safety, and environmental	Managerial
Sound Financial Analysis	Qualification & experience of key design & construction personnel	Qualification & experience of safety and environmental personnel	Location of registered office/ main place of business
Total investment schedule	Competencies of designers, sub-designers, contractors & subcontractors	Management safety accountability	Constitution of the management, their qualifications & experience
Payment and draw-down schedule	Quantities, conditions and ownership of plants & equipment	Past safety record	Leadership & allocation of responsibilities in the consortium
Equity-debt ratio	Design standard	Past environmental performance	Organisation structure & culture
Sources and structure of main loan	Design life	Safety management systems	Contractual relationships between participants
Sources & structure of standby loan	Conformation to design requirements	Noise mitigation & handling of handling of dangerous/emergency situations	Working relationship between participants
Attractiveness of main loan	Conformation to client's requirements	Safety planning for handling dangerous material	Coordination system in the consortium
Attractiveness of standby loan	Additional facilities beyond client requirement	Environmental policy and management plan	Dispute resolution mechanism within the consortium
Attractiveness of shareholder's agreement	Structural aspects	ISO 14000 certification	Ability to address counterpart risk (default by other parties)
Low financing charges	Geotechnical and foundation aspects	Conformance to laws & regulations	Communication and documentation systems
Fixed and low interest rate charges	Electrical and Mechanical systems	Protection of flora & fauna	Partnering and negotiation skills
Long term loan financing & minimizing refinancing risk	Architectural/Aesthetics aspects	Protection of items of cultural/Archaeological values	Trade Union record
Abilities to deal with interest/currency risks	Quality management & assurance systems	Construction & demolition waste disposal	Project Management skills
Creative financial package	Design & construction quality control schemes	Control of air & water pollution	
Local financing	Construction technology and methods		
Ability to get supplementary external	Constructability		

refinancing profits. Despite this sharing, the refinancing of Octagon Healthcare, the Special Purpose Vehicle (SPV) running the Norfolk and Norwich hospital, achieved a £4.1m profit for Serco alone.

[49] *Concessionaire Selection: Methods & Criteria*- Xuequing Zhang, Journal of Construction Engineering and Management Vol. 130, No 2, April 1, 2004

Financial	**Technical**	**Health, safety, and environmental**	**Managerial**
finance Currencies of loans and equity Currency of revenues and payouts Lead Banks' capacity Minimal financial risk to client Internal rate of return Net Present Value Toll Structure and adjustment mechanism Low Toll levels Government control on tolls Revenue schedule Financial strength of participants Financial commitment from shareholders Construction Period Concession Period Financial Institution guarantees Insurance cover Concession fee Less Government support in terms of Grants or subventions	Maintainability Value Engineering potential Construction programs and methods Material schedule Use of local equipment and materials Construction cost schedule Insurance package for construction & operation Toll collection technology Operations & Maintenance technology Operations & Maintenance cost schedule		Staff training regime Risk management system Procedures for transferring the contract back to client

5.28 Numerous approaches have been used for awarding motorway concessions. Table 12 depicts the methods used for granting motorway concessions in four European countries having highly formalized approaches to contract award.

Table 12: Selection Criteria Weighting in Four European Countries (%)[50]

	Shadow toll		**Toll**	
	United Kingdom	**Finland**	**Spain**	**Portugal**
State subsidy			35	70
Coherence of concession company financial plan	Criterion: lowest NPV of payments to a concession company	90 (for NPV)	30	
Investment, toll charges, operating costs			25	
Completion dates for execution of work				
Design	Technical minimum required (best non-enhanced solution)	10 (for technical criteria)	10	30
Quality of service/maintenance				

Tender Evaluation Criteria used in NHAI

5.29 NHAI uses two staged selection procedure based on restrictive competitive bidding. These two stages are

- Pre Qualification Stage
- Bidding Stage

The criteria adopted at both the stages are described in detail in the following paras.

Prequalification Stage

5.30 Earlier Prequalification was usually done on the basis of project specific criterion. However, for Post NHDP projects to be done on BOT basis involving nearly 10000 kms of national road network, a system of empanelment has been adopted (Registered list). It is similar to the prequalification procedures except it entitles the prequalified entity to bid for a host of projects for which the

[50] **Source: Road Infrastructure Concession Practice in Europe, Franck Bousquet & Alain Fayard, 2001**

empanelment has been done. However, the project allotment is dependent on his bid capacity, which is related to bidder's financial capacity as determined by the laid down formula. At prequalification stage, two evaluation criteria used are Technical Capacity and Financial Capacity of the bidders.

5.31 **Technical capacity** is measured in terms of demonstrated experience as developer and/or in construction industry

5.31.1 The following categories of experience qualify as Eligible Experience:

- Category 1: Project development experience in road sector
- Category 2: Project development experience in core sector
- Category 3: Construction experience in road sector,
- Category 4: Construction experience in core sector,

Road sector is implied to include roads and highways, expressways, bridges, tunnels and airfields. Similarly core sector includes power, telecom, ports, railways, industrial parks, petroleum and natural gas, petrochemicals, steel, cement, fertilizers, mining, pipelines, irrigation, water supply & sewerage, Township and Real Estate.

5.31.2 Eligible experience is restricted to works:

- Which would meet the threshold size fixed for the project.
- Which have been commissioned or billed (as the case may be) during the past five years preceding the date of application.
- The private operators claiming experience for a particular work have to show that they possessed certain minimum equity (usually 26%) on the date of commissioning.

5.31.3 The disparate experiences are equated in by applying weightage factors (Table 13). Applicant's experience is calculated in terms of Experience Score which is weighted experience as above. The aggregate experience score of a particular applicant has to match a threshold level, which is normally kept equivalent to 50% of the project cost.

Table 13: Weightage used in NHAI to Equate Different Experiences of Bidders

Categories	Description of Experience	Measurement Parameter[51]	Typical Threshold size	Typical Weightage factors
Category 1	Project development experience in road sector	Project Cost	Half of the Project Cost	1.00
Category 2	Project development experience in core sector	Project Cost	2/3rd the Project Cost	0.67
Category 3	Construction experience in road sector	Certified Billings	40% of the Project cost	0.67
Category 4	Construction experience in core sector	Certified Billings	Half of the Project Cost	0.50

5.32 **Financial Capacity** of the applicant is assessed by comparing his net worth with threshold level. Such information is based on the audited reports of the business done by the applicant and it is usual to seek information for preceding three years to make value judgment. Usually the evaluation criterion is to have a minimum net worth level equivalent to 50% of the project cost.

5.33 **Form of Participation in the concessioning company:** In order to ensure the actual participation of the preferred bidder in works, NHAI usually impose conditions of participation in equity component of the concessioning company by the entity seeking prequalification. It is required that project should be domiciled prior to implementation by forming a Special Purpose Vehicle and generally has an equity lock-in period ranging from 3 years to 5 years after the commercial operations begin. Thereafter, this equity stake can be sold out, even completely, without further permission from government or NHAI.

[51] The Project costs or certified billings of differing years are often adjusted at a predetermined inflation rate, typically 10% per annum, before they are added up to check against the threshold criteria.

5.34 NHAI does permit some changes in the constitution of consortia, which had originally got pre-qualified by allowing Institutional partners to join. However, such changes are only permitted before the bidding stage. This change is subject to approval by NHAI, which specifies the extent of change. No clear guidelines are available on this and the approach is programmed to be on case-to-case basis.

Bidding (Proposal) Stage

5.35 The bids are sought in two sealed envelopes. These two envelopes contain separately:

- The technical proposal, and
- The price proposal

5.36 Technical proposal generally includes the following:

- Validity period of the proposal
- Power of Attorney vesting the right with a person to sign the proposal
- Power of Attorney in favour of Lead Member, wherever required,
- Memorandum of Understanding (MoU), for forming consortium
- Anti-collusion certificate
- Bid Security
- Non-deviation affirmation which includes minimum machinery and personnel requirements to be deployed at work.[52]
- Reaffirmation of original prequalification criteria

5.37 **Price Proposal :** It is usually a singular criterion that is adopted for seeking a price proposal. In the past, following bid parameters were chosen

- The amount of grant or negative grant (concession fee) sought or to be given by the concessionaire, as the case be, from the government.

[52] These manpower and machinery requirements are generally dictated by the construction period requirements. A typical requirement for them is included at Annex H & I.

- The amount of annual payments by the concessionaire sought over the concession period
- The duration of concession period.

Tender Evaluation Criteria used in Punjab

5.38 During prequalification rounds done in PRBDB, only one criterion was chosen which related to net worth of the participant (Required minimum net worth was Rs 50 crores or US $11 million or more). Perhaps this comparatively lax criterion has been adopted to ensure that there are enough bidders who may qualify. Finally, about 15 potential bidders have been short listed.

5.39 The final bidding stage has not started yet. However, it is generally assumed that a single bidding element e.g. minimum grant shall be used for bid evaluation. It is likely that the project definitions shall be very broad and means to achieve those are not proposed to be prescribed.

Suggested Improvements in NHAI process

5.40 NHAI has adopted a procurement procedure for BOT works, which is derived from traditional procurement methods. The following aspects may need a rethinking and re-evaluation to strengthen the selection procedures.

5.41 The criteria adopted during prequalification rounds for assessing the technical capacity of the likely bidders are biased towards construction firms. This may be a carry over from the traditional procurement procedures. It would be better if greater reliance were placed on category 1 and category 2 experiences without limiting it to the past five years. This is because, not only the experience related to project development is more relevant but also such experience is usually long term based because of the length associated with such works. For example, a PPP project, which may have been undertaken ten years ago, is more likely to be still an ongoing work unlike an ordinary construction work. In fact, an “older” experience read along with the performance reviews of that project shall be better measure of the technical capacity of the applicant rather than projects which it may have just closed and which are still in construction phases.

5.42 At the bidding stage, NHAI adopts only one criterion for evaluating the financial proposal. In the current program, it is the grant sought from the government (or negative grant to be given by it, as the case may be). The direct payments sought from the government on annual basis have also been used earlier (Annuity Model). The chief advantages of such criteria are their simplicity and transparency. The bid award is fairly automatic and there is very little qualitative evaluation on the part of government. On the other hand, there is a complex interplay of financial plans, equity structures, rate of debt, level of insurance coverage, investment schedule, level of local financing, construction period with the financial risks being transferred to government. The contingent liabilities borne or the financial risks owned up by the government while adopting these criteria remain masked unless valuation are done upfront for comparing these amongst different bids. It may not be thus fair to ignore these while deciding the financial bids. Otherwise, the comparison shall be on a false assumption of complete equality in all bids regarding these elements For example, the termination payments to be given by the government to the concessionaire in response to *force majeure* and other unforeseen changes are partially covered under insurance covers to be taken by the concessionaire. Hence, the level of insurance covered proposed to be taken up by the concessionaire shall have an important bearing on the government financial liabilities in such events.

5.43 To cover these points, it is often that a term sheet is sought from the bidder which defines his financial plans and other related assumptions that he is making. It is also required to have a financial commitment statement from a lender. Even otherwise, such measures help establish the credential of bid by showcasing the due diligence efforts made by the bidder.

5.44 Similarly, since the design of roads is not a part of submissions, it may be a good idea to evaluate the expertise associated with the bidding effort. It is interesting to note that similar effort is directed towards ensuring deployment of key personnel of requisite experience and qualification by including a table prescribing the minimum requirements for them (Annex H). But similar limitation on design personnel or associated design firms is missing in the same document. Similarly,

the machinery requirements have been prescribing with a focus on construction of road. No such equipment requirements for maintenance and operations have been prescribed.

5.45 Another important aspect that may be useful for valuations is the residual life of the structures, which the concessionaire is likely to hand over at the time of expiry of concession period. This shall be a good indication of the design assumptions being made and shall encourage long-term solutions.

5.46 Thus it might perhaps add to the evaluation quality, if the following additional parameters were used for evaluation as well by assigning them certain weightage.

- Debt Equity Ratio
- Investment Plan including the level financing Charges
- Insurance covers
- Extent of local financing
- Qualification and experience of key design personnel or design firms
- Residual life of the structures including pavement at the time of handover

Suggested criteria for Punjab

5.47 In Punjab, since the prequalification criteria was fairly lax and that strict project definition are not being attempted, it may be worthwhile to test the quality of bids on technical criteria more strongly. The following parameters are suggested in this regard.

- Qualification and experience of key design personnel or design firms
- Qualification and experience of key construction personnel or design firms
- Number and quality of equipment being deployed
- Adherence to design requirements
- Construction schedule
- Operation and maintenance policy to be adopted

5.48 On the financial bid structure, it is proposed that the format of using least-present-value-of-revenue (LPVR) as bidding parameter be adopted. This is a comparatively new format, which has been tried in Chile. In LPVR bid format, the

concession period is adjusted endogenously (up to a limit) with the realization of demand put up front by the successful bidder. In traditional fixed term concessions, (with the concession period being fixed), the problem is that they create demand risk for the bidders. Since demand is uncertain, the bidders incorporate risk premium, which is paid out by the user (or through government guarantees, by taxpayer). [53] Additionally, such format tends to favour the firms that have more optimistic traffic forecast ("the winner's curse"). In LPVR mechanism, the toll rates are fixed and the concession is awarded to the firm bidding the least present value of revenue. The concession ends when the present value of toll revenue equals the concessionaire's bid. The toll revenues are discounted at predetermined rate specified in the concession agreement (closely aligned to loan rate). In some cases, a cap on increase of concession period is also kept at which the concession automatically expires. The main limitation of this method is that it provides fewer incentives to engage in demand enhancing activities (under investing in road quality or maintenance, speedy attention at toll stations, or quicker removal of accidents). Such mechanism requires stronger regulatory institutions, which can enforce minimum quality standards.

5.49 Also, It may be worthwhile to include some additional criteria as proposed for NHAI case to strengthen the selection efforts. These being:

- Debt Equity Ratio
- Investment Plan including the level of financing charges
- Insurance covers
- Extent of local financing
- Residual life of the structures including pavement at the time of handover

[53] For Chile, such risk was estimated at about a third of the investment and for other developing countries can be even higher.

VI CONCLUSION AND RECOMMENDATIONS

6.1 PPP represents a new approach to providing enhanced infrastructure facilities in transport sector. The immediate focus has shifted from Why (to have PPP) to How (to have successful PPP).

6.2 India, faced with increasing demand to provide quality road infrastructure, is also embracing PPP in a big way. Once current Post-NHDP project is completed, as much as 20% of national road network would have come under PPP format. Punjab is also adopting PPP as a solution for its infrastructure financing needs.

6.3 To respond proactively and professionally and to utilize all the benefits associated with PPP and to keep in check the pure market drive of private sector, structured, organically modeled teams are required in government to deal with such a program. There is need to club various tasks to structure such a team. In Indian context, the following points emerge.

- It is imperative for long term success of PPP program that NHAI should have a dedicated, appropriately staffed unit, first to launch this program and then to monitor it on long-term basis.
- In Punjab, an outline of a team structure does exist, but it needs to be given proper flesh and blood. There is a case for PRBDB for building such a team.
- There is pressing need to impart contract negotiation and contract-monitoring training to such officials as may be placed in such teams. A country like France, which has a rich tradition of road concessions, is ideally suited to provide such help. The Indo French Working Group on Road Sector may like to dwell on this point in depth to work out the modalities of such trainings both in India and in France.
- A close interaction between NHAI and state units responsible for PPP program in road sector needs to be established for ensuring uniformity on the network in regard to road furniture, safety features, signalisation, network planning etc.

6.4 Possible formats of such team have been presented in this project report, both for NHAI (Para 3.39 to 3.46) and Punjab (Para 3.47 to 3.50). This attempt,

though non-exhaustive, has been made to provide **a** possible solution and can be attempted as a starting point for structuring a PPP task team.

6.5 Similarly, the requirements of procurement methods in PPP requires a delicate balance to be struck between accountability and transparency on one hand and efficient pursuits of procurement activities on the other hand. Procedural cost should closely match the cost of procurement in both the directions. The stakes are higher in PPP, both for the private partner and the government, because of the extent of sunk capital in road infrastructure and the nature of services to be provided. In PPP projects, negotiations form an integral part during procurement and contract implementation due to complex interplay of involved processes and long duration of contract itself. Important points are summarized as below:

- Negotiated procedures should be allowed to be included as legitimate procurement method for PPP in NHAI and Punjab.
- Innovation-in-solution-providing has been the hallmark of PPP. It needs to be encouraged more by bringing greater flexibility into procurement process both in NHAI as well as Punjab.
- NHAI should catalyse the research in innovative construction methods & financing tools by engaging Institutions, consulting firms, contractors etc. and by providing adequate finances for it.
- The financial price bid is intimately related to several factors like interest rates, insurance covers, debt equity structure etc. Hence, there is a greater need to have a closer look at those during bid evaluation.
- Using LPVR, as a bidding parameter, may be a good alternative. This is because the commercial risk gets mitigated to legitimate levels and may help reduce the price bids substantially.

6.6 It will be presumptuous to assume that this report provides the complete solution. As there is no “the solution”, it is shall be extremely useful to engage experts and order policy guidance notes on the entire gamut of processes of PPP in Indian context. However, a beginning can be made to restructure “the BOT teams” by assigning them specific tasks as listed elsewhere in this report.

NHDP- Private Sector Participation Projects
(BOT/ANNUITY/SPV)
Status as on 30/9/04

Stretch State Funded By	NH	Length (Km)	Date of		Contractor & Nationality
			START	Completion Original Completion Estimated	
Vivekananda Bridge and Approach West Bengal Build Operate & Transfer	**NH- 2 Delhi-Kolkatta**	**6**	Sep-2002	Apr-2006/ Apr-2006	SVBTG Consortium of AIDC group (USA) & STRADC (Philippines) Philippines – USA
Panagarh - Palsit Km517-Km.581 West Bengal Annuity		**64.457**	June-2002	Dec-2004/ Dec-2004	Gamuda-WCT Malaysia
Palsit - Dankuni km 581 - km 646 (Durgapur Expressway) West Bengal Annuity		**65**	Oct-2002	Feb-2005/ Feb-2005	Consortium of Gamuda & WCT Engineering Malaysia
Satara - Kagal (km 725 - Km 592.24) Maharashtra Build Operate & Transfer	**NH 4 Chennai Mumbai**	**133**	Feb-2002	May-2004/ Dec-2004	MSRDC Indian
Tumkur-Neelmangala km 62 - km 29.5 Karnataka Build Operate & Transfer		**32.5**	4 LANED		Jayaswals-Jas Toll Road Co. Ld (Consortium of Ashoka Buildcon - SERI Intl.)JV Indian
Maharastra Border-Belgaum (km 592 - km 515) Karnataka Annuity		**77**	Jun-2002	Dec-2004/ Oct-2004	North Karnataka Expressway Pvt. Ltd. (Consortium of IL & FS - Punj Llyod - CTNL)
Nadigama - Vijayawada AndraPradesh BOT	**NH-9**	**35**	May-2001	Dec 2003/ Dec 2003	CIDB Malaysia
Delhi - Gurgaon Section (Access Controlled 8/6 Lane) Km.14.3 - Km42	**NH-8**	**27.70**	April-2002	Dec 2005	M/s Jaiprakash Industries Ltd - D.S.Constt. Ltd Indian
Tambaram - Tindivanam km 28 - km 121 Tamilnadu Annuity	**NH-45**	**93**	May-2002	Nov-2004/ Jun-2004	Tambram-Tindivanam Expway pvt ltd.(GMR Consortium & UE Malaysia) Indian-Malaysian

Stretch State Funded By	NH	Length (Km)	Date of START	Date of Completion Original	Date of Completion Estimated	Contractor & Nationality
Ankapalli - Tuni km 2.8 - km 49 Andra Pradesh	**NH-5 Chennai Kolkatta**	**58.947**	May-2002	Nov-2004/ Nov-2004		GMR Consortium Indian-Malaysian
Tuni - Dharmavaram (AP-16) km 300 - 253 Andra Pradesh Annuity		**47**	May-2002	Nov-2004/ Oct-2004		Andhra Expressway Ltd. Indian
Dharmavaram - Rajamundry (AP-15) km 253 -200 Andra Pradesh Annuity		**53**	May-2002	Nov -2004/ Oct-2004		Rajamundry Expressway Ltd. - Gammon Indian
Nellore Bypass Km.178.2-Km.161 Andra Pradesh Annuity		**17.166**	4 Laned			Consortium of Soma Enterprises & Navyuga Engg Co. Ltd Indian
Nellore - Tada Km.163.6 - Km.52.8 Andra Pradesh Build Operate & Transfer		**110.52**	4 LANED			CIDBI of Malaysia Malaysian
Jaipur Bypass Phase II Km.221 of NH8-Km.246 of NH-11 Chandwaji-Harmara Rajasthan SPV	**8**	**34.7**	Dec-2001	Jun-2004/ Dec-2004		Punj Lloyd & Progressive Const. Ltd Indian
Ahamadabad-Vadodara Expressway Phase-II Km.43.3-Km.93.302 (Rigid: Nil, Flexible: 49.9) Gujarat	**NE-1**	**50**	4 Laned			L.G.Engineering Construction & Nagarjuna Const. Ltd. Korean-Indian JV
Ahamadabad-Vadodara Expressway Phase-I Km.0.0-Km.43.4 Gujarat **SPV**	**NH -8 Mumbai Delhi**	**43.4**	4 laned			PT Sumber Mitra Jaya Korean-Indian JV
Mahapura(Near Jaipur)-Kishangarh Km.273.5-Km.363.885 Rajasthan Build Operate & Transfer **BOT**		**90.38**	April-2003	Sep-2005/ Dec-2004		Consortium of GVK International NV and BSCPL

Stretch State Funded By	NH	Length (Km)	Date of START	Date of Completion Original / Completion Estimated	Contractor & Nationality
ROB at Kishangarh Km.273.5-Km.363.885 Rajasthan Build Operate & Transfer **BOT**		**1**	4 LANED		MSK Projects (I) Ltd. Indian
Port Connectivity Roads					
Port Connectivity to Mormugoa Between Verna JN on NH-17 to Mormugoa Port Goa **SPV**	**17 B**	**18**	Apr-2001	Apr-2003/ Dec-2003	Border Road Organisation (Indian)
Haldia Port Road Connectivity to Major Ports Phase I West Bengal **SPV**	**41**	**53**	Sept-2002	Mar-2005/ Mar-2005	CWHEC-HCIL Chinese-Indian
Jawahar Lal Nehru Port (Phase I) Road Connectivity to Major Ports Maharashtra **SPV**	**4B & 4**	**30**	Feb-2002	Apr-2004/ April 2004	Thakur-Mhatre-Unity Indian
Vishakapatinam Port Road Connectivity to Major Ports Andra Pradesh **SPV**	**SR**	**12**	June-2002	Dec-2004/ Dec 2004	M/S Venkata Rao Engineering Indian

List of Post-NHDP Projects

Lot I Projects (Bidding Process completed - awaiting award once the Program as a whole is approved by Cabinet Committee on Economic Affairs (CCEA)):

(a)	NH-3, Vadape to Gonde (Maharashtra),	100km
(b)	NH-3, Pimpalgaon to Dhule (Maharashtra),	118 km
(c)	NH-6, Raipur to Aurang (Chattisgarh),	45 km
(d)	NH-11, Bharatpur to Mahua (Rajasthan),	55 km
(e)	NH-11, Mahua to Jaipur (Rajasthan),	110 km
(f)	NH-58, Meerut to Muzaffarnagar (Uttar Pradesh),	79 km
TOTAL LENGTH in LOT I :		**507 km**

(ii) Lot II Projects (bidding in process - bids yet to be received)

(a)	NH-33, Ranchi to Hazaribagh (Jharkhand)	75 km
(b)	NH-21/22, Ambala to Zirakpur (Haryana & Punjab)	36 km
(c)	NH-1, Jalandhar to Amritsar (Punjab)	49 km
(d)	NH-6, Nagpur to Kondhali (Maharashtra)	40 km
(e)	NH-6, Kondhali to Talegaon (Maharashtra)	50 km
(f)	NH-40, Jorbat to Shillong (Meghalaya)	62 km
(g)	NH-3, Indore to Kalghat (Madhya Pradesh)	80 km
(h)	NH-24, Lucknow to Sitapur (Uttar Pradesh),	75 km
(i)	NH-11, Agra to Bharatpur (UP/ Rajasthan),	48 km
(j)	NH-3, Guna Bypass (Madhya Pradesh) (new 2-lane alignment)	14 km
(k)	NH-30, Patna to Bakhtiarpur (Bihar),	53 km
(l)	NH-19/77, Patna to Muzaffarpur (Bihar),	48 km
Total Length in LOT II		**630 Km**

Other Projects

1	NH -9 Hyderabad to Pune	100 km
2	Elevated highway in Panipat Town	11 km
3	NH-8 Vadodra Mumbai Highway	

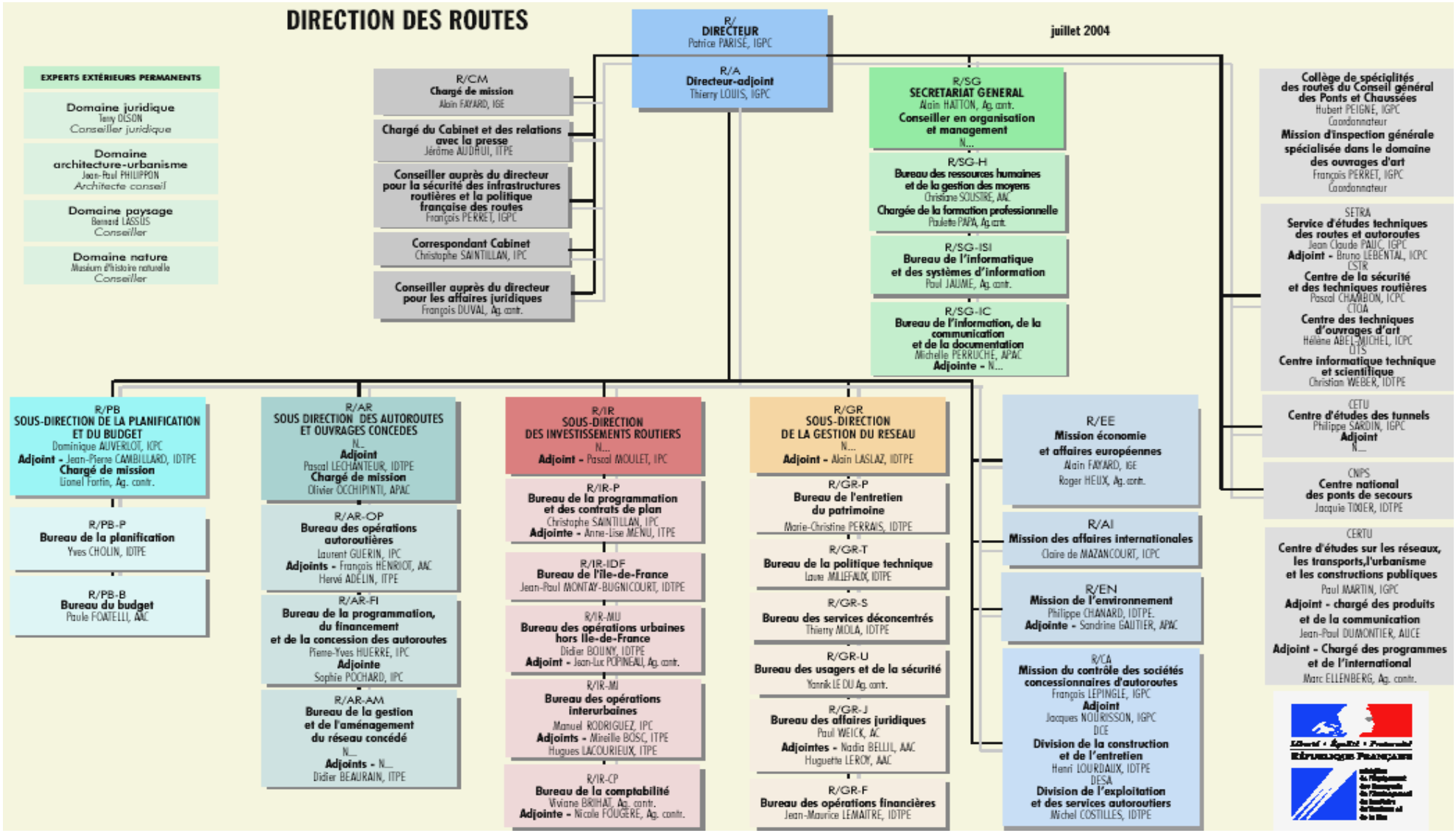
LIST of BOT CORRIDORS in PUNJAB
(UNDER PIDB & PRBDB)

Sr. No.	Name of Road	Length in Km.
PIDB		
1	Balachaur Garhshankar Hoshiarpur Dasuya	103
2	Hoshiarpur Tanda Shri Hargobindpur Amritsar	102
3	Batala Mehta Beas	35
4	Nakodar Kapurthala Kartarpur	45
5	Jandiala Taran Tarn Attari	56
6	Ludhiana Malerkotla Sangrur Lehragaga	128
7	Patiala Nabha Malerkotla Jagraon	120
8	Moga Bagha Purana Kotkapura	45
9	Kharar Banur Tepla	39
10	Patiala Samana Patran	49
11	Ferozepur Fazilka	86
12	Anadpur Sahib Nangal Una	37
PRBDB		
13	Hoshiarpur – Phagwara Road	36
14	Sirhind Morinda Ropar	44
15	Bhawanigarh Nabha Gobindgarh	52
16	Ferozepur Makhu via Mallanwala	41
17	Dakha – Raikot – Barnala	56
18	Southern Bypass to Ludhiana City	33
	Total Length in Kilometers	**1107**

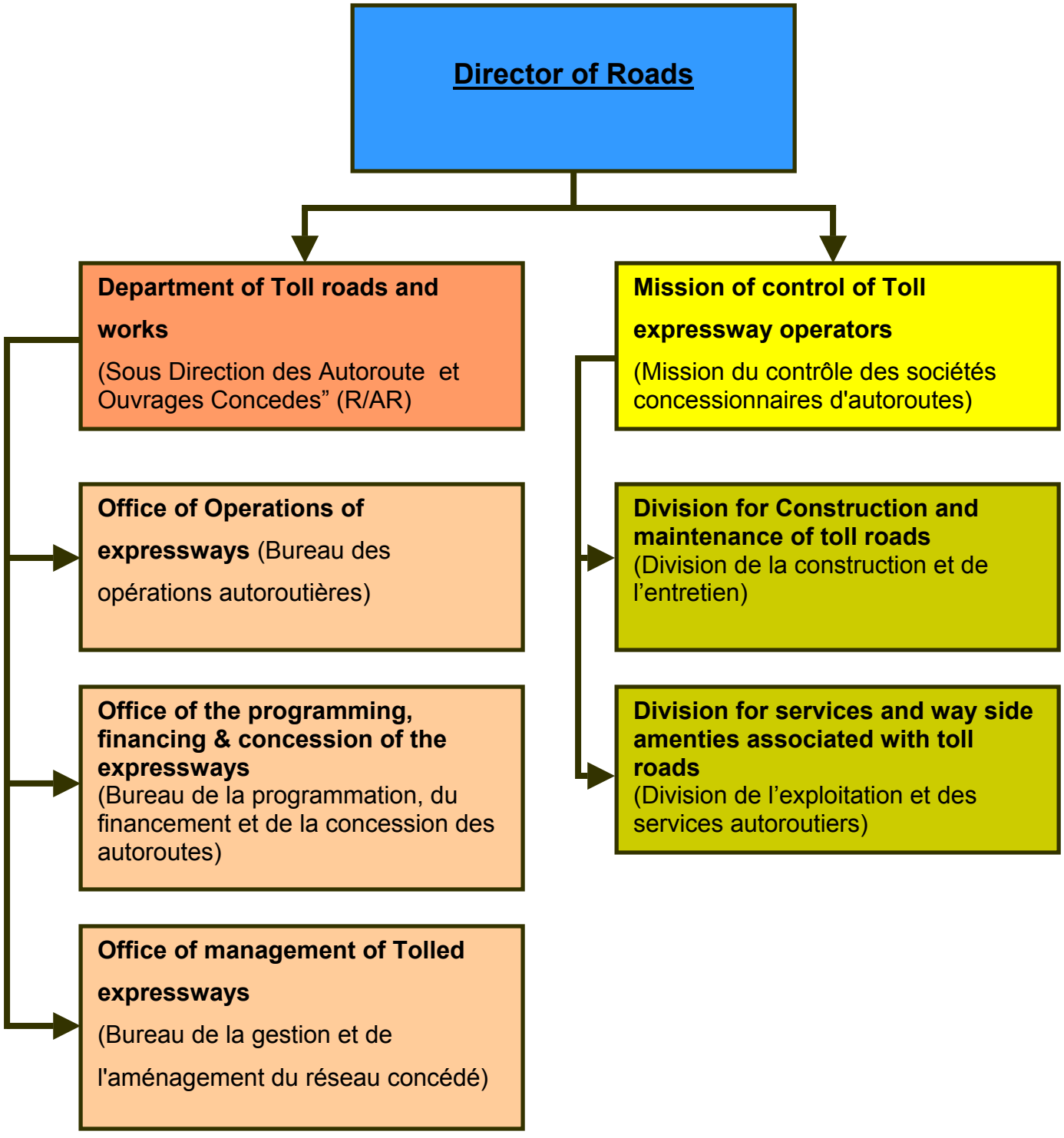
List of French Toll Operators

Name of operator	Current Equity pattern	No of conces-sions	Total Road length	Starting date of Concession	End date of Concession
ALIS (A28) Consortium formed by existing companies	Private	1	125	December 2001	2064
AREA (private company till 1981)	99% Public Subsidiary of APRR	1	384	1973	2032
ATMB (Relating to Tunnel)	50% French State. Switzerland and Italian State are other partners	1	117.9	1973	Tunnel : 2035 Motorway : 2015
Autoroute du Sud de France **ASF**	Public. Till 2002, 99%. Now 50.7%	1	2412.5	1960	2032
Autoroutes Paris Rhin Rhone (**APRR**)	Public 100% but 30% to be sold shortly	1	1821	1961	2032
CCI du Havre Pont de Normandie	Local Public Authority	1	6.6		
COFIROUTE	Private	1	928	1973	2032
EIFFAGE (A75 contract of viaduct of Millau)	Private	1	2.68	July 2001	2070
ESCOTA	Subsidiary of ASF	1	459	1959	2026
SANEF	Public 100%	1	1316.4	1961	2028
SAPN	99% owned by SANEF	1	367.4	1962	2028
SFTRF (relates to Tunnel)	50% French Govt	1	80.6		2050
SMTPC (relates to Tunnel)	100% Private	1	2.5	1991	2025
Total including Bridges & Tunnel concessions		**13**	**8023.58**		

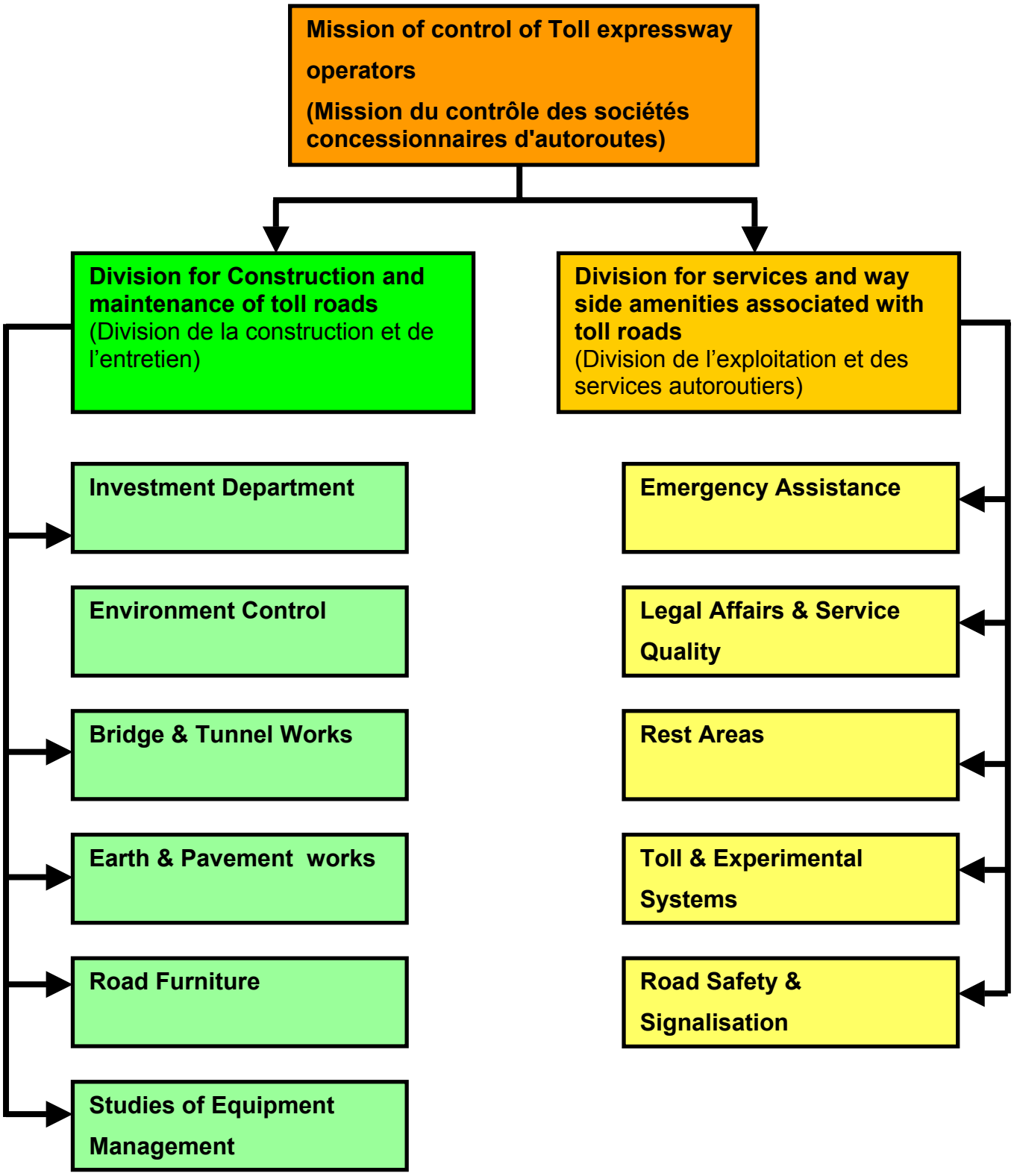
Organigramme Of French Road Directorate



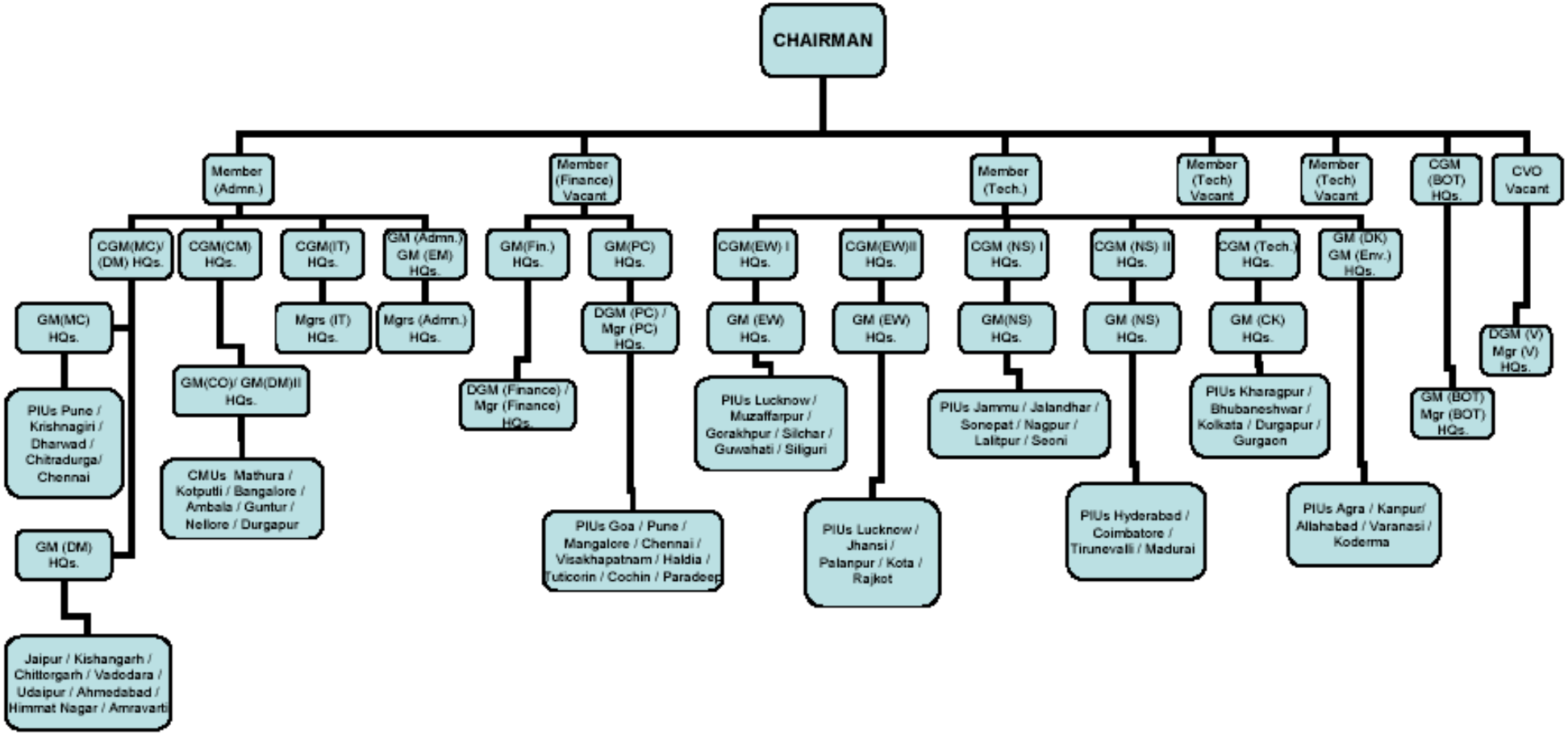
Road Directorate Unit dealing with Road Concessions



Road Directorate Unit Entrusted with Contract Implementation of Road Concessions

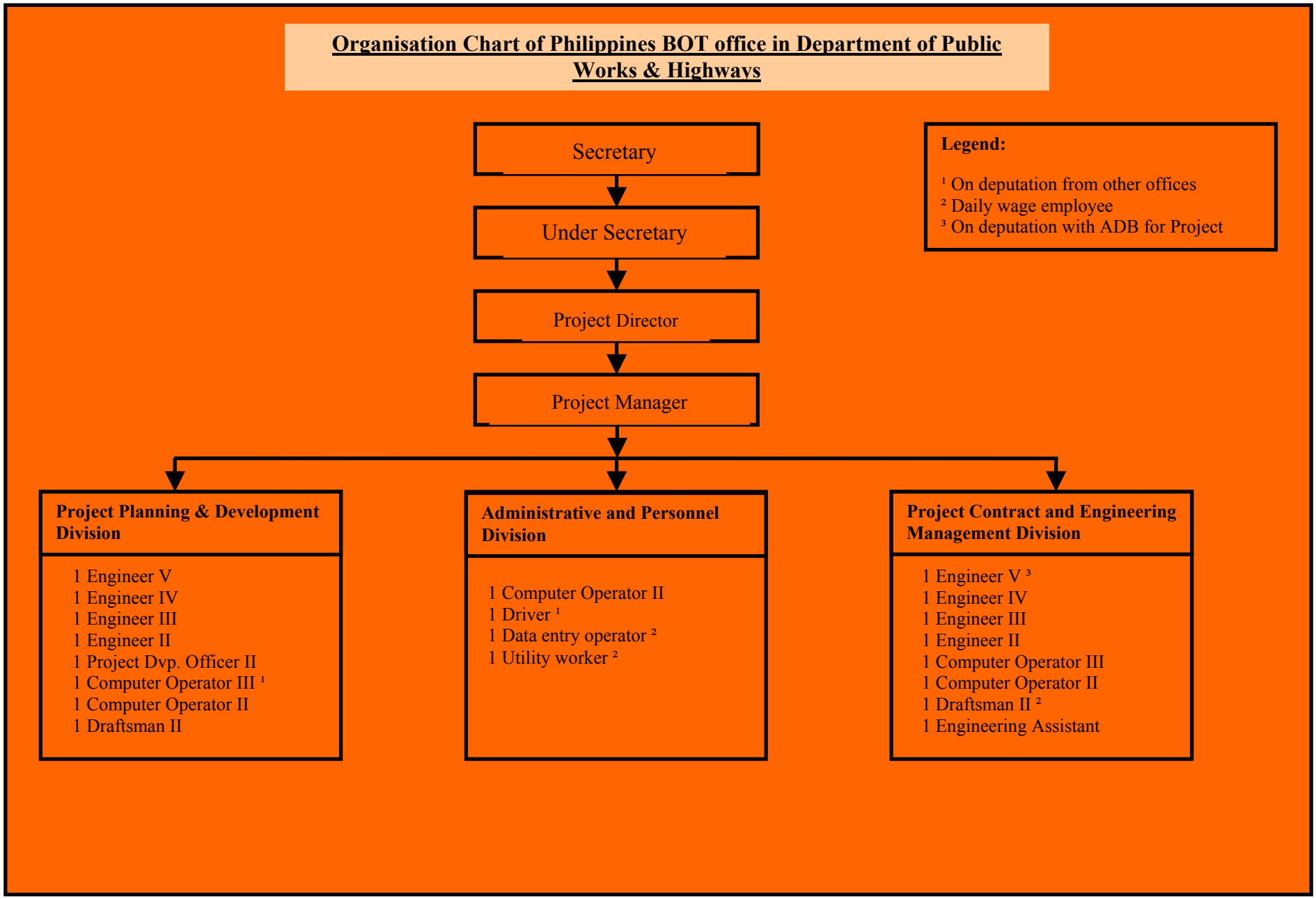


NHAI Organisation Chart



A -	Administrator	DGM -	Deputy General Manager	HQ -	Headquarters
BOT	Built Operate & Transfer	DK -	Delhi-Kolkata Section	IT -	Information Technology
CGM -	Chief General Manager	DM -	Delhi-Mumbai Section	MC -	Mumbai-Chennai Section
CK -	Chennai-Kolkata section	EM -	Estate Management	Mgr -	Manager
CM -	Corridor Management	EW -	East-West Corridor	PC -	Port Connectivity
CMU -	Corridor Management Unit	F&A -	Finance & Account	PIU -	Project Implementation Unit
CO -	Corporate Operations	GM -	General Manager	NS -	North-South Section
CVO -	Chief Vigilance Officer	GQ -	Golden Quadrilateral		

Organisation Chart of Philippines BOT office in Department of Public Works & Highways



List of minimum machinery for NHAI BOT Projects[54]

S.No.	Type of Equipment	Max. Age as on 01/04/2004 (years)	Capacity	Minimum Number Required
1.	Motor Grader	5	50 cum per hr	2
2.	Stone Crusher	5	175-200 T per hr.	1
3.	W.M.M. Mixing Plant	5	200 T per hr	2
4.	Hot Mix Plant	5	120-150 T per hr	2
5.	Asphalt Paver Finisher with electronic devices for automatic level control and capable of paving in one operation minimum (i) 9 m. width (ii) 6 m. width	 5 5		 1 1
6	Self propelled portable Kerber to lay Kerb as per designs.	5		1
7	Concrete Batch mixing plant outline requirements and salient features. (i)Weighing multi compartment overhead bins. (ii) Computerized integrated system.	5	15 to 50 cum per hr	1
8	Concrete Mixers with integral weigh batching facility	5	10 to 15 cum per hr	2
9	Pneumatic Tyred Roller	5		2
10	Tandem Vibratory Roller (6-8 tons) Tandem Vibratory Roller of 10 T	5 5		2 2
11.	Vibratory Roller of 1 T for	5		1

[54] As per Request For Proposal Document for the BOT work of National Highway No. 6 from Km 50.000 to Km 100.000 (Kondhali to Talegaon Section).

S.No.	Type of Equipment	Max. Age as on 01/04/2004 (years)	Capacity	Minimum Number Required
	edge compaction			
12.	Cranes 100 tons.	5		2
13.	Piling Equipment		1.2 dia	1
14.	Low bed truck			1
15.	Bitumen pump, distributor with prime mover			2
16.	Mechanical brooms			2
17.	Water browsers			4
18.	Edge cutting m/c (flexible pavements)			1
19.	Tippers/Truck			25
20.	Excavators	3	1.25 m^3	2
21.	Automatic Line Marker			1
22.	Hydraulic Rock Cutting Equipment	2		2

List of minimum personnel for NHAI BOT Projects [55]

Sl. No.	Position	Total experience (Years)	Experience in similar works (Years)	Remarks
1	Project manager	15	10	Should have completed similar minimum two projects of 25 km. Each as Project Manager or as Deputy. Project Manager with a total road construction experience of 150 km Comprising flexible and rigid pavement construction.
2	Deputy Project Manager	12	8	Should have completed minimum two projects of 25 km. Each as Deputy Project manager or Construction Manager/Engineer with a total road construction experience of 100 km comprising of flexible and rigid pavement construction.
3	Materials Engineer	15	10	Should have worked as Material Engineer or as Lab. Engineer for minimum two highway projects of 25 km each with a total construction experience of 100 km comprising flexible and rigid pavement construction.
4	Plant and Equipment Manager	10	5	Should have maintained bituminous hot mix plant, bituminous and concrete paving equipment and its accessories with electronic sensors, batch mix plants and crushing plants.
5	Bridge/Structure Engineer	15	10	Should have executed minimum four bridges of length more than 60 m. and must have adequate experience in Prestressed concrete construction, pile and well foundation
6.	Asphalt Pavement Engineer	15	10	Should have asphalt paving experience of at least 80 km. Length and a total highway construction experience of 100 km.

[55] As per Request For Proposal Document for the BOT work of National Highway No. 6 from Km 50.000 to Km 100.000 (Kondhali to Talegaon Section)