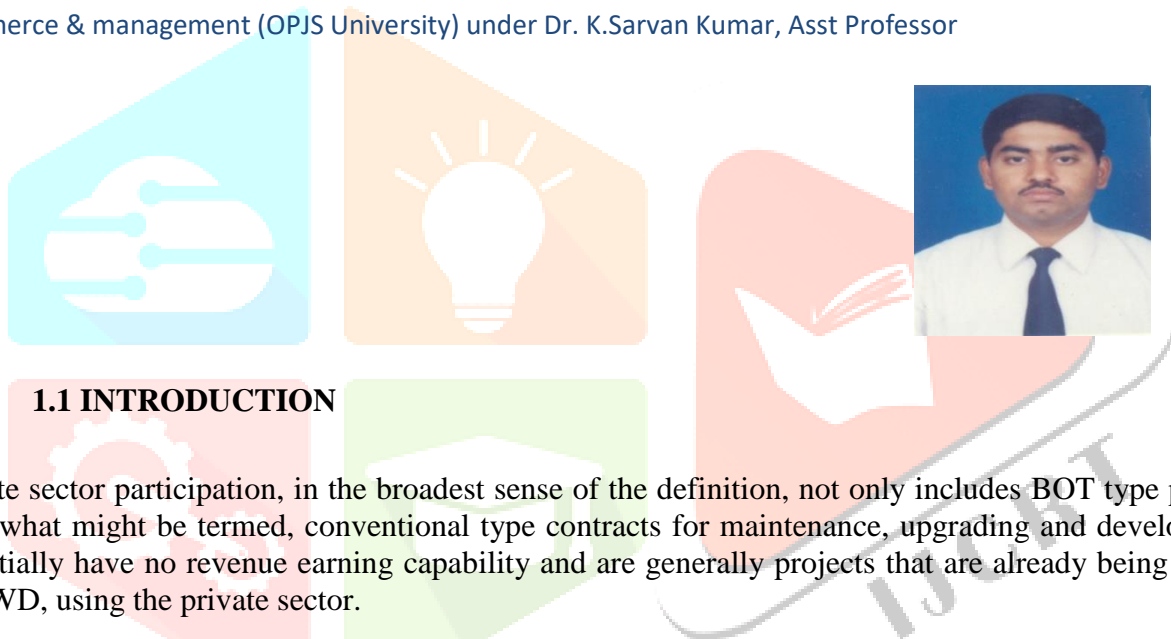




PRIVATE SECTOR PARTICIPATION & PUBLIC PRIVATE PARTNERSHIP FOR FUNDS UNIVERSALLY

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1.1 INTRODUCTION

Private sector participation, in the broadest sense of the definition, not only includes BOT type projects but also, what might be termed, conventional type contracts for maintenance, upgrading and development that essentially have no revenue earning capability and are generally projects that are already being undertaken by PWD, using the private sector.

1.2 WHAT ARE THE REQUIREMENTS FOR THE ENHANCEMENT OF PSP IN THE ROADS SECTOR.

As a first step it is essential that a management structure for the roads agency be evolved with the assignment of responsibilities for the management of the network. By implication, and necessity, this will require that for the road network there is a comprehensive road inventory, including condition and traffic, and, that the responsibilities for each strata of the network be assigned. Furthermore, the responsibilities in relation to operation, maintenance, upgrading and development of the network, also require to be allocated.

In this respect, identified that will study the realistic UP roads ownership framework as well as the updating of roads policy. Within UP there already exists two additional agencies, to that of PWD, dealing with the roads sector, namely, the State Bridges Corporation and, more recently, the State Highways Authority. Furthermore, as a part of the realisation of an effective core network, it has been identified that there is a need for data on asset condition and traffic if PWD is to be strengthened for core network road maintenance planning and management functions. In the latter case this will involve the establishment of a RMMS which will require inventory and condition data, as well as, traffic data.

Whilst the ownership of the road network resides with Government, it is the community that ultimately pays for the roads. As such it is therefore arguable that the users or stakeholders should also have a 'voice' in

both the management of the road network and, the efficient allocation of funds for the development and maintenance of these assets.

Under this issue of sector participation in UP roads financing and management, GoUP is to widen the membership of the RFMC to include further stakeholders in order to look at funding, its allocation and, road sector performance. In addition, funding mechanisms, funding requirements and, the allocation of funds, are also to be examined.

For the efficient allocation of funds to occur it is clear that there requires to be, not only an adequate flow of funds, but also that this flow should be 'stable' if both the roads agency is to be effective and its endeavours sustainable. Funds come from various sources, one of which is road user charges, but this alone may be insufficient. Nevertheless, the raising of user charges does not imply that funds will be sufficient or, more importantly, stable. One method of ensuring stability in the flow of funds is the 'Earmarking' of funds but this can place constraints on Governments overall budgeting. The placing of a road with the private sector, wherein the user pays a charge for the use made is, of course, one method to circumvent such a problem. As already noted above, it will be reviewing funding mechanisms, requirements and the allocation of funds.

The final requirement in the process is the introduction of sound business practices for which a commercially orientated road agency is required. As a first step, and as already noted, the GoUP has already established the UP State Highways Authority for PSP, privatisation and outsourcing. The next step in the process must therefore to establish this as an operational and functioning Authority.

1.3 WHAT IS THE MEANING OF PRIVATE SECTOR PARTICIPATION [PSP] IN THE ROADS SECTOR

Roads, and their provision, are generally regarded as 'public goods' and, as such, are generally conceived as 'free'. Involvement of the private sector in their provision therefore embodies a measure of commercialisation which, if taken to its logical conclusion should, under a market economy, infer some form of efficiency, or return on capital employed, motivation as ultimate objectives. Clearly, however, roads are not 'free' goods like for example air [although this is also debateable], and as such have a measure of cost involved. In the case of road provision, roads are generally provided by Government for the use of the community, who in turn pay for such, either directly through tolls or, indirectly, through various forms of taxation. Given that roads are therefore not a 'free' good then it would appear logical that some form of private sector involvement in their provision, or PSP, might well be envisaged. Nevertheless, it is also clear that there should also be some measure of control over provision and so the concept of Public Private Partnership [PPP] has been derived.

PPP or PSP in transport infrastructure might therefore be broadly defined as a measure of cooperation between the public sector and private sector stakeholder(s) as this relates to the development of a transport infrastructure project or a defined road network. The key to this is identified in the word 'partnership' and subsequently in the overall concept of PPP.

The question therefore follows as to what constitutes PSP or PPP in relation to a road infrastructure project. In order to attract the private sector, the terms of engagement should be such that that there is some form of joint venture mechanism through which the public sector provides some measure of support to the extent required to attract PSP in a project. As such, various PSP mechanisms or structures have been derived to make involvement in the roads sector commercially attractive which can entail the public sector assuming a proportion of the risks attached to a project.

In reviewing the above it is clear that the common thread of co-operation between public and private parties regarding the development of infrastructure schemes, or the maintaining of the network, with public support and private finance [where appropriate], should to some degree be linked with the sharing of risks and responsibilities. The mechanisms and structures that are therefore used for financing, and the sharing of risks and responsibilities, can therefore take a variety of forms.

In terms of PSP, such a partnership between both the public and private sector should therefore be beneficial to both parties with the linking of the public service objective and the entrepreneurial approach to provide the potential for;

- ❖ a collaborative effort to ensure both parties in the liaison benefit
- ❖ goal sharing in terms of the delivery of an efficient and effective service
- ❖ clear division of responsibilities;
- ❖ shared cost and revenue relationships

In general, some of the reasons for PSP in public infrastructure projects can be identified as to:

- ❖ provide access to additional funds over and above that available through Government budgets
- ❖ permit the development of viable transport infrastructure projects that have been omitted from works programmes due to the lack of sufficient funds
- ❖ bring to the public sector the private sector goals of efficiency and value added.
- ❖ provide for the construction of a potentially higher quality product given that the private sector entrepreneur will ultimately be responsible for its operation and maintenance over a defined time period
- ❖ transfer the risks of delays and construction cost overruns from government and the taxpayer to the private entrepreneur
- ❖ Provide for information and knowledge exchange and the transfer of technology.
- ❖ create commercial development opportunities adjacent to an infrastructure project thus creating the opportunity for additional employment opportunities and increased social welfare

PSP in the form of PPP might therefore be considered an appropriate tool for the minimisation of public costs due to access to additional sources of funding and the potential for efficiency gains from private sector involvement. Furthermore, PSP might also be considered for use in accelerating the implementation of network improvements. Although constrained budgetary allocations have increased the attractiveness of PPP's for the public sector, the aim of PPP's is wider than just the mobilisation of financial resources. Other benefits can include: the merging of public and private sector skills; possible improved cost efficiency in infrastructure provision etc.

The motives for the private sector to participate in public private partnerships are straightforward. The private sector will always participate in a project if the rate of return on their investment is sufficiently attractive.

The basic principle of public and private sector involvement in the road sector, through PPP schemes, is therefore a trade-off between public interest - requiring a balance between socio-economic costs and benefits - and business interest - requiring a minimum return on invested capital. However, without the latter private sector involvement might well be minimal. Finally, it is worthwhile at this stage to broadly identify what might be considered to be the principal objectives of both the public and private sector, as shown below.

Public Sector objectives: The public sector objectives, in relation to large-scale infrastructure projects, include:

- ❖ the implementation of policy,

- ❖ planning criteria, through policy integration and the amalgamation of local, regional, national development plans;
- ❖ the maximising of social and economic benefit with minimum cost through achievement of ‘value for money’;
- ❖ the minimising of environmental and social impacts;
- ❖ the adherence to both strict and the highest possible technical standards.

Private sector objectives: The private sector objectives, in relation to large-scale infrastructure projects, include:

- ❖ the maximising of the return to the stakeholders with minimum risk and financial cost;
- ❖ the adherence to the company’s investment strategies through either diversification or specialisation;
- ❖ project ownership and revenue extraction over the period that the infrastructure is financially viable to operate;
- ❖ securing of the option to transfer/lease the infrastructure to another operator, if predicted operating/maintenance costs, in addition to major renewal costs, are a significant threat to longer-term financial viability.

1. INTERNATIONAL EXPERIENCES OF PSP IN PPP

2.1 INTRODUCTION

There are generally considered to be two broad approaches, firstly, the creation of a dedicated company that is entrusted to develop, finance and operate a network or secondly, PPP concessions for the development of highway projects

2.2 CHILE

Background: The basis for PPPs in Chile is a law that allows the state to franchise projects in the key infrastructure sectors such as roads, ports and airports. The Ministry of Public Works is the nodal agency for project execution. The law specifies the key roles and responsibilities of the Private and the Public sector. The concessionaire must build the project within the time limits established in the tendering process, and must maintain its quality, giving an uninterrupted service, of a quality consistent with his winning bid. This is checked during all project phases, with the nodal agency being allowed to fine, suspend or even terminate a concession should the franchise holder fail in complying with its obligations. There is also a dispute resolution mechanism to review conflicts between the two parties.

Procurement process: Franchises can only be awarded in competitive auctions which are open to both national and international firms. The agency identifies the projects to be bid out which are tendered based on detailed design and engineering. The key motivation for the conduct of detailed design and engineering by the agency is to permit government to estimate and fix the key project parameters. Previously however, bidders would carry out their own designs and provide, in many instances, innovative solutions.

The bidding for projects is in two stages, the first stage is the pre-qualification stage and firms submit their technical and financial capabilities, based on which the agency shortlists firms for detailed technical and financial proposal submission. At the proposal stage the technical proposals are evaluated by Technical Bid Evaluation Commission who selects bids that meet the minimum technical criteria. Financial bids of these bidders only are then opened and the bidder with the most advantageous offer is awarded the project.

Tendering variables: The law is flexible and leaves ample room to adapt the ‘franchise contract’ to the requirements of each project. In particular, the tendering variables can be any of the following (or a combination thereof): user fees, subsidy from the state, duration of the concession, income guaranteed by the state, revenue paid by the franchise holder to the state for pre-existing infrastructure, risk assumed by the

bidder during the construction and/or operation stages, quality of the technical offer, fraction of revenue (beyond a certain threshold) shared with the state (or users), and total income from the concession.

- i. Bidding based on the weighted average of seven variables [annual subsidy by or payment to the state, toll level and structure (composed of six different tolls, with different weights for different classes of vehicles), term of the franchise, minimum income guarantee, degree of construction risk borne by the franchise holder, score on the basis of additional services and CPI adjustment formula].
- ii. Bidding based on the lowest levels of tolls.
- iii. Bidding on a lexicographic scheme based on bidding for tolls, then concession period or payment to the government in phases
- iv. Bidding on Least Present Value of Revenue (LPVR) [Under a LPVR based concession, the bidding and award criteria is the Present Value of Revenue that is quoted by the bidder to cover all his costs and return parameters. The bidder quoting the least present value of revenues gets the Concession. The Concession ends when the present value of toll revenues asked by the concessionaire equals the amount of revenue bid by it on present value term. Therefore, if the actual traffic is lower than projected, the concession period gets extended or if the actual traffic is higher than projected the concession period gets shorter accordingly. Toll revenues are discounted at a predetermined rate specified in the contract. The rate should be a good estimate of the loan rate faced by franchise holders]
- v. In addition to the above, these structures have been backed by some common risk sharing and mitigation tools, such as, minimum income guarantees, revenue sharing formula and, toll indexation linked to the risk profile of the project.
- vi. Lessons learned
- vii. Compared to a global average of about 10% of strategic road infrastructure developed through private sector, Chile has been able to develop upwards of 80% through private sector involvement. The key lessons from its experiences are:

A strong, stable and transparent legislative environment – the PPP programme in Chile is characterised by a strong will as well as a stable environment under which the procurement process has been run.

Innovative PPP structures – Chile has experimented with various PPP structures and devised ways in which balanced risk sharing is achieved between the sponsor and the concessionaire. The LPVR structure is one such mechanism that has great potential to be applied in other contexts.

Focussed risk mitigation – Some of the risk mitigation mechanisms put in place by MOP, such as minimum income guarantee schemes and, the allowing of pension funds to invest, have made project financing of PPP easier.

2.3 UNITED KINGDOM

Background: Private Finance Initiative (PFI) was launched in 1992 with the key aim being to involve the private sector in highways development and introduce private sector skills and disciplines into the delivery and management of projects and services that had traditionally been undertaken by the public sector. The key feature of these PPPs and PFIs has been the use of ‘shadow tolls’ and performance based payments to the Concessionaires. Under these payment mechanisms, the users do not pay the concessionaires but instead the government pays the concessionaire on behalf of the users based on the actual usage of the facility.

Under Design Build Finance and Operate (DBFO), the emphasis rests on the provision of an operating service, rather than an asset, over the 30-year life of a contract. The private sector therefore assumes responsibility for the operation and maintenance of a length of existing road (where appropriate) and for the building of specified improvement schemes. The emphasis of a DBFO is to achieve the most economic and

beneficial project solution through a combination of transfer of risk to the private sector (design, build, finance and operation) and the introduction of private-sector innovations.

The UK applies some interesting concepts such as Value for Money and Public Sector Comparators for assessing whether a project should be undertaken via the traditional / conventional route or should be taken up through PPP. This concept is also used later on to assess the amount of economic benefit the project has generated through PPP.

Procurement process: The procurement process follows the overall EU guidelines for procurement of such projects. The three stage process for DBFO projects comprises, prequalification; proposal submission and short-listing of tenders based on their technical and commercial submissions; negotiation with the two bidders short-listed to elicit their “Best and Final Offer” with the award being based on this. The competitive pressure is maintained throughout given that the award is the outcome of simultaneous negotiations with the two short-listed bidders.

Once a project is identified, a Contract Notice is published by the Highways Agency (HA) in the Official Journal of the European Communities inviting requests from interested parties to pre-qualify with a view to later being invited to tender for a DBFO Contract for the Project. Prequalification of bidders is based on: (i) financial and economic standing; (ii) technical capability and approach; (iii) the capability to secure appropriate technical, financial and legal advice for negotiations and the finalising of the contract; and (iv) the avoidance of arrangements which could constitute a conflict of interest.

Tender provision and Standard Bid submission: Upon prequalification, the parties are provided with tender documents that detail the Agencies Standard Bid requirements for detailed design, engineering and other information and, its definition of obligations and the allocation of risk. The Standard Bid includes; The model contract; Detail on the road schemes for each project;

- ❖ The core requirements for both the construction and operation and, maintenance phases of the project;
- ❖ The payment structure and details of what is required to be bid for in relation to this;
- ❖ The contents list for the standard bid which must be returned by each bidder;
- ❖ Areas where variation from the standard bid may be considered and, The criteria by which the bids will be evaluated.
- ❖ The period between the return of bids and contract award can be divided into four stages as follows;

Bid clarification - the first one/two month(s) following the bid return are spent by the Agency and advisers in reviewing the technical solutions, ensuring that the core requirements were satisfied and, where necessary, obtaining clarification of the bids. Bidders are required at prescribed times to deliver information on their technical solution and to identify departures from the illustrative requirements. This procedure is designed to prevent bidders delivering a technical solution which would have been fundamentally unacceptable.

Simultaneously with the technical review, the financial model, proposed shadow tolls and financial package are reviewed by the financial advisers with the legal advisers reviewing contract qualifications and any other commercial aspects of the bid. In the case of any bid variations, these are also reviewed in order to identify whether they are viable alternatives worth pursuing.

First negotiation - the initial negotiation is focused on risk allocation and whether the expected NPV of the payment stream is likely to be lower than the public sector comparator. This commercial negotiation is designed to ensure that the bidders proposal offers value for money. Once both parties understand each

other's position on risk allocation, a re-bidding is then initiated which then forms the basis for the selection of a shortlist of two or three bidders¹.

Second negotiation – This is an intense phase and includes significant legal input. By this stage the bidders will have delivered a detailed mark-up on the model DBFO contract which will form the basis of negotiations. Following this second period of negotiation, the short-listed bidders are asked to return their 'Best and Final Offer'. Whilst bidders are still subject to competitive pressure, all negotiations on key contractual provisions and price need to be concluded before the 'Best and Final Offer' is submitted. These are then evaluated by the Agency and the Provisional Preferred Bidder (PPB) is selected. The runner-up is asked to keep its 'Best and Final Offer' on the table in the event that negotiations cannot be concluded with the PPB.

Negotiations with PPB - After selection, negotiations commence with the PPB and its financier to finalise the terms of the DBFO contract and the Direct Agreement between the Agency as well as that between the Agency and the financier. It remains open to the Agency to return to the second bidder, if agreement cannot not be reached with the PPB. The Agency can exercise this right if negotiations with the PPB deviate significantly from that which was the basis of the PPB selection.

At this stage the PPB has to obtain committed funding and must finalise any specified contractual issues with the Agency before it can be considered the Preferred Bidder. When all terms are agreed and the Agency is satisfied with the background contractual arrangements, such as any sub-contracts, financial closure can take place. The negotiations with the PPB are the most detailed and lengthy part of the negotiations.

Tendering variables and payment mechanisms

The UK Highways Agency uses a variety of mechanisms to pay DBFO companies. The first eight contracts primarily used the shadow toll payment mechanism, and were based on the number of vehicles using the road. The key payment mechanisms are:

Payment mechanism 1 - Shadow Tolls with performance related payment incentives and disincentives:

The Highways Agency pays each DBFO company an amount which is based on the number and type of vehicles using the road, with adjustments made for lane closure and safety performance. As payment for use is made by the Highways Agency, rather than by the road user, these are known as shadow tolls as opposed to real tolls and are based on use measured in vehicle kilometres for a project stretch.

As part of the bid, bidders are asked to specify traffic bands (in vehicle kilometers) for basically two classes of vehicles (more and less than 5.2 meters in length). There must be at least two bands but there can be up to four bands. Bidders are also asked to specify the rate for each of the bands. Based on this, payments are computed in NPV terms. The use of traffic bands means that the rate to the concessionaire is capped and traffic risks are borne by it.

Availability of Service - Where the project road consists of an existing stretch of road with one or more construction schemes along its length, then shadow toll payments are made at a reduced level representing the cost and operation for the existing road.

Performance - There are two key elements that form the basis of performance payments.

- i. **Safety performance payments** - The DBFO company is encouraged to suggest safety improvement schemes with incentives being given for improving safety on the project road. If approved, the company constructs and pays for the scheme and is recompensed by receiving 25% of the economic cost of each personal injury accident avoided over the subsequent five year period.

¹ Three bidders would be selected if for various reasons it is not possible to separate two of the bidders.

ii. **Lane closure charges** - a deduction is made from the toll payment when lanes are closed. The size of the deduction is dependent upon the number of lanes closed, the duration of the closure, the expected traffic at the time of the closure and the economic value of user delay. Lane closures charges are only made for closures that are within the control of the company.

Payment mechanism 2: Availability Payment Mechanism

This form of payment mechanism [primarily designed for roads with urban characteristics] was defined in order to achieve policy objectives and to improve the incentives to the DBFO company to optimise the availability of road space and generally take steps to improve the level of service to the public. Under this mechanism payments are based on:

Availability - payments take account of the number of available carriageway lanes and depend on the time of day. For example, payments for keeping the road available during peak hours will be higher than payments for off-peak hours. This method of payment provides an incentive for the company to manage their maintenance programme to avoid disruption to road users at busy times. With the company being required to also address the needs of the non-motorised user, there are also separate payments for footpath and cycleway availability.

HGV/Bus 'shadow' tolls – with 'shadow' tolls for heavy goods vehicles and public transport being given priority for effective management no incentives are given for the increase of car commuting.

Safety payment mechanism - incentives are to be further developed to reduce accident rates.

Bus journey time reliability - the company is encouraged to keep bus lanes available during operational hours to provide for further reliability of bus journey times.

Payment mechanism 3: Active Management Payment Mechanism:

The Active Management Payment Mechanism (AMPM) encourages the DBFO company to actively manage the project road to reduce congestion and increase the reliability of road user journey times. It also retains the benefit of whole life costing, early delivery of schemes, consideration of safety and, provision for the proper planning of maintenance to minimise loss of availability of the road at peak periods.

This is achieved by reducing payments for any times that congestion is experienced on the project road. It is considered that the company will have a significant influence on both the occurrence and levels of congestion through the effective management of the causes of congestion.

The Active Management Payment Mechanism also works in tandem with a Safety Performance Adjustment. This Adjustment is made to the payment based on the number of personal injury accidents that occur on the project road in comparison with a benchmark established from accident records.

Contracts - Under this mechanism, the DBFO company is considered to be in a position to be able to control and reduce congestion and is therefore required to accept the risk of predictable congestion, such as; road works, special events, slow moving vehicles etc. Management of these can be achieved through, for example: planning road works to be undertaken during off-peak times; liaison with the local authorities, police and other interested third parties to plan for impact of known events; having breakdown and response vehicles on standby; provision of additional signage and break down vehicles during special events and, the introduction of temporary traffic management measures during emergencies etc.

In the case of unpredictable congestion, such as that due to accidents, poor weather, etc., it is recognised that the DBFO Company will have limited control over recurrent congestion caused by sheer volume of traffic demand as it approaches the nominal capacity of the road. The Payment Mechanism therefore makes allowances for this and the companies exposure to these risks are therefore mitigated.

The basis of congestion management payment – The companies bid will have included a single annual amount to be indexed for the 30 year term of the contract. This amount is divided up into carriageway sections for each hour of the day with the allocated amount for each section, and each hour, being directly proportional to the level of traffic. Payments are then made based on the following criteria:

Full payment if speeds are above the target speed.

Should speeds fall below the target speed then the payment is reduced

However, full payment will be made if traffic exceeds the deemed capacity of the road section, even if the speed falls below the target speed.

There are graduations in the level of deductions for both speed [between minimum and target speed] and between 80% and 100% of capacity.

A bonus is also paid if flow exceeds 110% of capacity and average speed exceeds the minimum speed. The maximum bonus is 20% of the payment for the hour and road section, if flow exceeds 120% of capacity with average speed in excess of the target speed.

The key advantages of the DBFO structure are:

- ❖ **Innovation in project design and delivery** – the process, incentives, project innovation, and optimisation of life cycle costing all reduce overall costs. However, the key disadvantage of the process is the length of time the process takes which, on average, results in the entire procurement process taking around 16 months.
- ❖ **Reduced traffic risks** – The key advantage of the shadow toll structure is that the users do not have to pay the Concessionaire directly for use and the transaction / administrative costs are avoided, thus removing any resistance to tolls and thereby any adverse effects on traffic. Secondly, the system of traffic bands works in such a way that the concessionaire bears the risk/cost of reduced traffic, i.e. in the case where traffic goes below the level of the lowest traffic band, the government does not provide any support or guarantee. On the other hand, if the traffic goes above the maximum traffic band, the rate becomes zero and the agency is protected against any upside payment risks with any upside to the concessionaire being capped.
- ❖ **Strong incentives for performance** – the structure views the concession as a service and not just a tool to create an asset. The strong performance incentives and disincentives built into the concession, especially relating to service availability and safety, are elements that should be incorporated in concessions.

2.4 CHINA

Background: Traditionally, new highway construction in China has been largely dependent on public spending. Despite considerable investment in the road sector, however, the road network in China does not provide efficient transport access to large areas of the country. Improved transport links continue to be considered as a necessary input to improve economic efficiency, foster domestic and international trade, facilitate regional integration and reduce poverty.

Only relatively recently has the Government started to allow private Investment in the roads sector with this currently only accounting for some 10 per cent of funds dedicated for road infrastructure development, much of which has come from foreign investors. In order to foster this, the Government has taken a number of significant steps to mobilise domestic resources, including the developing of capital markets and the transforming of specialised banks into commercial banks plus, the assessment of a broad range of financial instruments for the mobilisation of additional domestic and international funding sources.

Based on a review of potential available revenues up to 2010 it has been estimated that there will be a financing gap of some \$ 173 billion or about \$ 12 billion per year for which the Government is creating a framework to encourage private sector participation for the finance of road investment. Private financing has started to play an increasingly important role in the mix of capital for highway construction and is happening because almost all high-grade highways, including the new expressways, are toll facilities which generate significant revenues and offer an attractive incentive to the investors.

Central government has given the responsibility for the financing of expressways to provincial authorities, who have to access private funds and/or foreign capital markets. These authorities are mainly the purview of Provincial Communications Departments, a number of which have established separate, but 100% owned, provincial expressway companies established to carry out specific highway projects and to have control over the highways in question. To date China has experimented with three models for the financing and organization of toll road companies, namely; Corporatisation, Lease / Concession and Securitisation with Corporatisation being an essential element to both the other two.

Corporatisation: For Corporatisation, a Limited Share Company is set up and developed under the Provincial Communications Department (PCD). This company is different from a single state entity, mainly because it is designed to be independent with no direct management or intervention by Government. It is independent and the audited annual statement of accounts, as well as the initiatives for change or development of the company, normally come from the Management, not the Board of Directors. Government acts like a normal shareholder with the responsibility for the appointment of Directors, Supervisory Board, auditors and the raising of the initial capital base.

Lease/Concession: Leasing is a special case of a concession in that the leasing of assets is generally called the Transfer of Operating Rights. Generally the terms of the lease/concession are based on what is required to secure the agreement. Government may provide; revenue, minimum traffic volume, annual traffic growth or, minimum rate of return guarantees to secure the lease agreement. While there are a number of 'leased' toll roads in China, in most cases these are joint ventures which are linked to the PCD or its expressway corporation, rather than full independent leases. There have been very few cases of open bidding.

Securitisation: The third and a key step in China's highway financing is Securitisation. As an alternative to BOT-type projects, with foreign capital funding, at the provincial level, China is pursuing the use of its extensive expressway system to raise new equity capital in Hong Kong, and the domestic market, through the issue of equity shares in provincial expressway development companies. Existing highway assets can be pledged or sold to these new companies with a dedicated toll revenue stream already in place. These revenues can then be leveraged or securitised to support a share issue through initial public offerings on the equity markets. This technique is now widely used in China, and in several instances, new financing has been supported by the use of existing revenue producing toll facilities, partially financed by the World Bank.

Private Financing of Toll Highways in China through Securitisation: Securitisation is an approach for generating funds for new road projects in China. The mode is to issue equity in capital markets which is backed by revenue streams from existing tolled expressways. The equity shares are issued through provincial expressway development companies, whose balance sheets are backed by the revenue producing toll facilities. The share of the toll road entity sold to public investors usually ranges from 20 to 40 per cent. Securitisation is undertaken at the operational stage of the project, after certain project risks have been mitigated, such as construction delays, cost overruns and initial traffic levels.

Mechanism: Existing toll roads are pledged to expressway development companies, with these companies then being securitised. Most transactions are centred upon initial public offerings of these provincial and municipal expressway development companies. These are special purpose entities which function as financing entities for Provincial Communications Departments (PCDs), who cede operating assets to such new entities to provide a high level of creditworthiness.

With the revenue producing facilities already in place, the new company can issue shares for the purpose of repaying the PCD for the asset(s) provided by them. The PCD can then use the new income to finance more

high grade highways. To make these entities credit worthy, there are certain benefits/advantages provided to them:

Preferential or non-competitive access to long-term concessions for the operation of existing and new highways

Rights to the development of future expressways with preferential tax benefits

Provisions which restrict competing toll and non-toll facilities

Minimum traffic and revenue guarantees.

Lessons learned

The highway programme in China has benefited from a combination of a maturing domestic financial market and a large existing tolled expressway system, which provides the opportunity for attracting new sources of private capital. This model provides an institutional or network alternative for generating capital over the medium term as compared to the more traditional approach in developing countries of financing projects on a stand-alone basis with private capital, which has not proven sustainable in many instances. The future of highway asset securitization depends, in part, on a reliable policy framework which streamlines approval procedures and allocates risks on an equitable basis to the public and private sectors. Nevertheless, the following issues should be borne in mind with such a model:

Securitisation: The primary advantage of using securitisation as a financing option is its low cost. It brings capital for funding infrastructure projects and involves the capital markets in such infrastructure, for which a fair value of each project can be determined. With lower 'lock-in' periods than debt, equities attract more investment than bonds. Alternatively, the main disadvantage of this option is the large amount of time required to complete the procedural requirements. In addition, raising finance from the capital markets is based on investor perception at that time. Foreign investments can be affected significantly in the case of any perceived political risk. Thus, there is a large uncertainty in determining the value that can be raised in the markets.

Risk Allocation Framework: Most construction firms are willing to accept some construction risk, provided they are able to influence the design of the project, construction schedule and, supervision of the work. This is not the case with 'start-up' revenues which pose a different and somewhat unpredictable level of risk in China. Through a combination of asset securitisation, minimum income guarantees and exclusive rights to develop future expressways, the government has attempted to mitigate the impact of commercial risk for developers. Though successful in the short term, this may well prove inefficient and financially unsustainable over the medium term.

Some of the negatives of the existing arrangements are:

Lengthy Approval Process: Management of highways in China is the responsibility of provincial agencies who also oversee expressway development companies. At least four central agencies and ministries, including China's Securities Regulatory Commission, have oversight responsibility for any highway share offering planned by a province or municipality. This provides a huge opportunity for 'red-tape'. Delays are not uncommon and directly increase both project and transaction costs.

Tariff Policies: Road tariffs must be approved by provincial or municipal authorities who operate under central government guidelines. Local and provincial price control bureaus decide the toll rates, often without commitment to regular adjustments that may be needed to offset rising costs and inflation. Private investors and lenders thus have no assurance that toll rates will be adequate to meet debt service payments.

Currency Convertibility: Availability of hard currency and exchange rate risks are important concerns to investors and lenders. The lack of means to secure guarantees from state agencies and commercial banks for hard currency has hindered many foreign investors from repatriating profits from their joint ventures on a timely basis.

Regional Financial Market Volatility: China's central agencies have expressed concerns over the volatility of share prices and fluctuating earnings performance of shareholding expressway companies, both of which could affect the level of toll rates and availability of capital for future highway development. As a result, future transactions may experience delays and difficulties due to the complicated and still evolving legal and regulatory structure in China.

Key issues in private sector participation development in China

- ❖ **Regulatory framework:** The Government has made substantial progress in issuing a series of laws, regulations, notices and circulars relevant and critical to private participation in infrastructure. However, much still needs to be done to further strengthen the legal system. The major constraints perceived by investors include lack of transparency in the legal framework, inconsistencies amongst various laws and regulations, inconsistent implementation and enforcement and, a lengthy and unpredictable approval process.
- ❖ **Approval processes:** The approval processes for projects with private sector participation are cumbersome. The official review and approval process for an infrastructure project generally has three stages: project approval stage, project company approval stage and operational approval stage. In short, to prepare an infrastructure project could require up to 40 approvals with the approval process continuing even after the project starts. International experience has shown that current approval processes can be streamlined given commitment from the highest level of government.
- ❖ **Institutional capacity:** Capacity-building of local government will be essential for the successful formulation of infrastructure projects involving private sector participation. Increasing private participation in infrastructure has put increasing pressure on local governments to strengthen their capacity as granting authorities, given the substantial amount of preparation work required in comparison to the joint venture approach in which local governments can rely on foreign partners for the most time-consuming and challenging task of project formulation.

The increasing infrastructure financing needs of China require a shift from the conventional financing models, such as commercial bank loans, international or bilateral loans, government grants and export credits, toward private sector participation. Initial public offerings of expressway companies on the stock exchanges have demonstrated that such investments can be financially attractive under certain circumstances. Bond issues are another suitable tool for infrastructure projects owing to the long-term and stable earnings stream of such projects. Revenue bond issues by a public agency that owns the asset have an advantage, as the public owns the facilities but the private investors finance it. However, any capital market instrument requires an adequate registration process and public disclosure, a strong credit standing and, the strengthening of the legal and regulatory framework concerning this matter. Expressway corporations may also consider leasing schemes, which would have considerable potential if combined with tax incentives for the lessees. This would ultimately improve road sector efficiency and reduce the burden on the government budget.

2.5 Japan

Background: The transport system of Japan is one of the most well developed systems in the world, with the highway system handling 66% of passenger traffic and 53% of all land-based freight traffic. Japan follows the model of exclusively using public corporations for highway construction. Having state resources involved in all highway projects allows it to use cross-subsidies over the entire national network. There are three different models used by Japan in highway construction; the use of public corporations, cross subsidies over the entire network and, the concept of redemption periods.

Public Corporations: Japan's toll roads have been constructed and operated almost exclusively by public corporations. There have been various arguments on the relative advantages and disadvantages of public corporations for building toll expressways. The arguments in favour of public corporations include:

- (i) If controlled by Government they tend to be more effective than their private counterparts in pursuing goals set by Government;
- (ii) The intensive Government control that often occurs when a large amount of subsidy is provided (as for expressway development) may not conform with private sector management techniques;

- (iii) Without substantial government support, the private sector would not be able to assume all of the long-term and large-scale investment risks associated with expressway development;
- (iv) Profitable private companies may not view cross-subsidisation techniques favourably and,
- (v) Toll rates that provide a reasonable level of financial return for private firms may well be too high to be politically acceptable.

The disadvantages of the system are mainly the lack of market responsiveness and inefficiencies.

Toll-Pooling & Cross-Subsidization: Cross-subsidisation is the practice of pooling all revenues from different toll roads and using this revenue 'pool' for financing the construction and maintenance of all such highway projects. This is in contrast to the practice of using tolls from individual facilities to finance the respective facility. The pooling of toll revenues allows for cross-subsidisation of lower trafficked routes, efficiency in toll collection and diversification of traffic risks.

In most of the countries using toll pooling, it is generally found within individual companies operating a number of different projects. In contrast, Japan uses toll-pooling across its entire national network.

In order to pursue a goal of building a nationwide expressway network which also runs through the rural areas, cross subsidies were required given the requirement to recover costs with toll revenues. Japan started pooling toll revenues from expressways and other regional highways as early as 1972 through the Japan Highway Construction Corporation. The tolls are set at just and fair levels with the objective of paying off the debt without charging the user in excess of the benefits they receive.

The critical issue raised by such cross subsidies is whether the social and economic advantages of having an extensive network of high-performance highways, instead of having a smaller network of roads where every segment can sustain itself, justifies the loss of financial discipline. Cross subsidisation can lead to a misallocation of scarce toll revenues to segments that may not service any significant traffic.

In order to reduce this inefficiency, a ceiling has been placed on the level of cross-subsidisation for loss making routes, equal to half the construction cost of the route. The balance should then be covered by the either revenue of the route and/or subsidies from Government.

Redemption Period: The government does not intend to finance any project, but does expect users to pay for the entire cost of the project through tolls – including construction, O&M and financing. It therefore has a policy of applying a toll for a certain period, known as the redemption period, during which it recovers the entire project cost. This period is set by the Government, who extends these redemption periods in order to minimise toll increases. This period has now increased to 40 years from an earlier period of 25/30 years. Upon completion of the redemption period, the government would then propose to make the roads toll free.

Lessons learned

- ❖ **Effect of Government support & conducive environment:** The Government of Japan has kept a clear and precise focus on the principles on which expressway development has to be based with effort having been made to obtain acceptance of the tolling concept. The Government whilst being committed to such, has also given substantial loans and advances towards highway development both of which has helped to provide a stable environment for road development.
- ❖ **Cross subsidies:** Japan has demonstrated the benefit of using cross-subsidies to develop unprofitable highways and link rural areas to the mainstream. By setting a ceiling on the amount that can be funded through cross subsidies, it has also tried to minimize the inefficient use of resources.
- ❖ **Ensuring efficiency in public corporations:** Most countries believe that the key to efficiency is through privatisation. However, Japan has applied checks and balances to ensure efficiency within the public sector. The road council has suggested that performance measures be used as a way to encourage cost reduction by comparing efficiency across agencies undertaking similar endeavours. To ensure market responsiveness, several toll rate discounts are permitted with government approval. Public corporations, however, still have limited capacity for flexible pricing and regional promotion.

- ❖ **Redemption principle:** The Government has a full cost recovery policy which calls for the user to bear most of the costs, including construction, O&M and financing. However this policy is difficult to follow for less travelled roads, and Government often increases tolls on existing facilities to support the construction of these, which has created political resentment.
- ❖ **Redemption extension & toll free roads:** The extension of the redemption period has generally been viewed unfavourably given the difficulty of projecting traffic for a long period. Making the roads toll free is generally opposed because of the need to cover O&M costs and possible future costs of widening/reconstruction/rehabilitation.

2.6 Italy

Background: Italy commenced toll road development as far back as 1925 and currently almost 85% of roads are tolled. The model followed is to use semi-public companies provided with concessional grants from the National Road Agency of Italy for highway construction (ANAS). It also uses cross subsidisation within companies and sometimes cross subsidisation of weaker concessionaires by stronger stakeholders, like Autos trade.

Semi-Public Concessionaire as Toll Road Operator: The development of toll roads has been undertaken with extensive government involvement and support. In particular, the Government created a large semi-public company; the Autos trade S.P.A., to develop the motorway network and provided it with various means of support. The Government has undertaken this development through the granting of concessions almost entirely to companies controlled by public bodies. There are 28 concessionaires, out of which 27 are semi-public companies. Originally, Autos trade S.P.A. was awarded a number of concessions primarily because of when it was established [1956] and, in addition, the fact that its parent corporation, IRI, was the only institution capable of implementing large-scale motorway development projects.

Reliance on Toll Revenues: In the early years, Government provided large subsidies to concessionaires with the remainder of project costs being funded by tolls. In 1968, however, there was a policy change toward more reliance on toll revenue for motorway development. Subsidies provided for Autos trade S.P.A. were frozen at the early 1960 levels and new measures were introduced to replace this subsidy, as follows; the extension of the concession period, indexing of toll rates to inflation and, Provision of cross subsidies amongst routes.

Tolls for those motorways operated by Autostrade S.P.A. were made uniform through cross subsidisation with toll increases being justified for construction, operation, and maintenance of the entire network, as required. The Government also established a fund (il Fondo centrale di garanzia) for cross-subsidising financially weak concessionaires. This provides financial support in order to reduce the burden of financially weak concessionaires (e.g., the payment of matured debts).

Lessons learned

The Italian toll motorway experience raises a number of major issues with respect to the development of toll roads, with important implications for best practices.

Creation of a financially strong toll road operator: The Italian experience demonstrates the advantages of having a toll road operator with a large network that can afford to cross subsidise financially weak concessionaires that rely on one or a few routes only. In the early years, the Government awarded a number of concessions to Autos trade S.P.A., which became far larger than any other concessionaire in the country. This policy proved particularly effective in the period when the economy was in recession with financially troubled concessionaires being cross-subsidised by Autos trade S.P.A. The government also forced Autos trade S.P.A to acquire the routes of ailing concessionaires.

Importance of winning public acceptance for toll increases: The Government has been successful in regularly raising tolls. Toll increases apparently contributed to the relieving of the financial problems of concessionaires in the 1970's and seem to have played an important role in maintaining the financial soundness of concessionaires since the mid-1980s. Since toll increases were perceived to potentially have

adverse impacts elsewhere in the economy, policymakers attempted to keep the rate of increase within certain limits, e.g., below the inflation rate, in order to generate wider acceptance.

Limited use of direct government subsidies: The Italian case study showed that direct government subsidies may be reduced significantly with the use of other measures including the extension of concession periods, the indexing of toll rates to inflation, and the use of cross subsidies.

Use of a special account to provide financial support for financially weak concessionaires: The Italian experience also demonstrates the importance of using a special account for providing financial support for motorway operators. The fund proved to be especially helpful during the 1973 energy crisis and also helped build stronger concessionaires.

2.7 France

Background: The French toll road programme dates back to the 1950's and involves both private & public companies in the construction of highways and motorways. French roads carry 90% of its passenger and 70% of freight traffic and therefore are a high priority agenda for French development programmes. France is rapidly developing a PPP market particularly in the roads sector. It also has the benefit of strong domestic contractors and a sophisticated funding market but is viewed as difficult to enter by non-domestic sponsors.

France has seen various phases of toll road development and has used various different models. Initially public and semi-public companies were established, known as SEMCA, with these being provided with financial assistance. Between 1969-71, private companies were also allowed to compete for new concessions. Since 1993 the government has renewed its drive for road construction and has re-capitalised the SEMCA's whilst moving back to long-term agreements between the state and private parties.

Characteristics of toll road development in France

Financial Assistance to SEMCA's: Due to limited equity of SEMCA's, financial assistance was provided in the form of loan guarantees, cash advances, 'in-kind' advances (already existing roads, ROW) and, cash balancing advances. In order to secure sufficient funds for these companies, the CNA was established in 1963 as an autonomous public agency with the objective of arranging finance for road development through the issuing of bonds in local and international capital markets.

Primary Contractor for expertise: During the privatisation phase, the SEMCA's jointly established a company to serve as their prime contractor for Autoroute construction, maintenance and research. This contractor was awarded the majority of SEMCA projects and gained expertise in such concession developments.

Toll Rate Regulation by Ministry of France: In 1975, the Ministry took a decision to regulate toll rates and decreed that the concessionaire could only increase tolls with Ministry approval. However, the Ministry has been using 'discretion' rather than using an inflation related formula for toll increases and has therefore tended to approve larger increases for less profitable companies which bears the risk of sacrificing efficiency.

Cross Subsidies: In 1982, an agency [ADF] was established by Government for the clearance of new advance issues to the nationalised concessionaires. The agency facilitated cross-subsidisation between companies and helped provide financial support to weaker players.

Planning agreements: Since 1993, the Government has re-established the long-term contractual links between the State and the companies. This has been achieved through five year planning agreements between the State and regional units. The agreements stipulate the parties commitments in terms of works and investment, toll rates, and financial objectives. The Government is able to do this primarily because these are public companies and it is therefore possible to renegotiate with them on a continuous basis.

Lessons learned

Regulation & legislation support by Government: The Government has kept a measured response to PPP, and has supported private participation through timely regulation & legislation. In almost all phases of development, the Government has been involved in road development, either as the principal or as the regulator.

Advantages and disadvantages of cross subsidies: The French cross subsidy programme has resulted in the expansion of toll road network as well as toll harmonisation within the country. On the other hand, the system has been prone to misallocation of scarce resources and loss of financial discipline.

Demerits of tolling highways: France is at the forefront in Europe in the use tolls to finance highway construction and maintenance. Tolling does however increase the cost of construction as well as operation and translates into an almost 10% increase in construction cost and 12% increase in operational costs. In addition, tolls have not served as a mechanism for reducing congestion, unlike the Active Pay Management model of the UK.

Specialist Contractor for Efficiency: The establishment of a specialised contractor has significantly increased efficiency with construction costs being estimated to be some 23% lower than those of an SEMCA. However, there were private companies who ‘failed to deliver’ which would seem to indicate that there are some risks of privatisation.

2.8 Spain

Background: Spain initially became involved with private concessions in 1960 but, during the ensuing period, it did continue with non-tolled public roads funded by Government. However, in 1992 the interest in private toll roads was renewed, mainly to reduce public deficit as a part of Spain's membership requirements to the European Union. During these phases of private Concessions, Government provided a full set of legal requirements for the governing of concession agreements as a means of control on highway development. Establishment of a special reserve and a ‘reversion fund’: Initially the Government required that a special reserve be set up by each concessionaire, into which he would allocate funds when net profit exceeds 10-15% of equity and, furthermore, that dividends be restricted to 6-15% of ‘paid up’ capital. The fund would provide a cushion in the case of a crisis and the means of supporting the financial viability of the company. In addition, the law also required that by the end of the concession, the concessionaire should have accumulated a reversion fund out of operating profits, large enough to assure the repayment of both debt and equity. Government loan guarantees & financial structure: The General Law on motorways proposes a financial structure to be followed by each concessionaire which requires at least 45% of financing should come from foreign loans, 10% equity and a maximum 45% domestic debt. The Government undertakes to guarantee up to 75% of foreign loans and assumes all foreign exchange risks. However, such guarantees for loans have rarely been drawn upon but the ‘bearing’ of exchange risks has turned out to be extremely expensive for Government. Toll rate increases: The initial toll rate guidelines were established by way of legislation. Unlike France, the toll rates could only be increased based on price indices of steel, petroleum and labour and not on project financial costs and traffic.

Re-introduction of toll road concessions: During the second phase of BOT projects, the following changes were introduced;

- ❖ The concession period was extended from 50 to 75 years.
- ❖ Provision was made for State advances and loans to be made available for the initial phase of construction
- ❖ Provision was made for the expanding of concession agreements to include investment in different types of expressway extensions.

- ❖ Restrictions were also lifted on operators entering related business ventures (shopping complex, food centres, etc.)
- ❖ Provision was also made for the securitisation of future toll revenues
- ❖ Exchange rate guarantees were cancelled.

Clearly, during this phase of development of PSP, government was trying to remedy the mistakes made during the first phase of private concessions. The extension of the concession period not only made it attractive for the investor, but it also eliminated the need of finding new toll partners after 50 years. The provision to include a time extension, and the allowing of operators to enter related business ventures, was implemented to give greater incentives to the investor. Securitising future toll revenues was intended to generate funds for future road investment.

Privatising State owned toll road operators: Currently Spain is moving towards the privatisation of its State owned highway operator (ENA), indicating an increasing trend towards the privatisation of highway development.

Lessons learned: Simultaneous existence of private toll roads and parallel non tolled roads: Spain tried to provide a network of parallel tolled and non-tolled roads. The Tolling of roads however, led to a problem of misallocation of traffic between the tolled and parallel nontolled roads, often creating heavy congestion on the latter. The expense of renewing public roads was in some cases higher than the cost of subsidising toll roads.

Reserve fund and inflation linked toll increases: Applying an inflation linked toll rate increase was not only rational but it also promoted efficiency, unlike the discretionary increases adopted in France. At the same time, the reserve fund eliminated the possibility of unnecessarily high returns to the investor.

High risks in guarantees: By extending a foreign loan guarantee, Government increased its risks and costs disproportionately. The total exchange losses were more than 5-6 times the equity investment whilst most of the loans had not even been drawn upon, from which it can be acknowledged that it did not make sense for Government to offer such expensive guarantees.

Low Equity Capital: The low equity investment in the initial phase of BOT had the effect of reducing risk and commitment of the concessionaire which ultimately had adverse financial impacts for many companies.

2. INDIAN EXPERIENCES OF PSP IN PPP

3.1 INTRODUCTION

The road network of India is large with a length in excess of some 3 million kilometres with the country therefore having difficulty in meeting accessibility and mobility requirements of a country of such size and population. The road network suffers from deficiencies in a number of areas and along with the rest of the transport sector has, in the past, remained under funded over successive plan periods. In order to raise resources and complete projects at a faster pace, the National Highway Act, 1956 was amended in 1995 to encourage private sector participation in the development, maintenance and operation of national highways. The private sector can now invest in national highway projects, levy, collect and retain fees from user charges and is also empowered to regulate traffic on such highways in line with the provisions of the Motor Vehicle Act. A number of incentives have been given to the private sector for the development of road projects, namely;

(a) **The Government bears the costs for:**

- i. Project feasibility studies;
- ii. Shifting of utilities/services;
- iii. Environmental clearance, cutting of trees, etc.;

- iv. Land for the right of way and way side amenities;
 - v. The land required for wayside amenities is treated as land required for the project.
- (b) **The National Highways Authority of India (NHAI)** is authorised to provide a capital grant up to 40 per cent of the project cost to make the project viable. However, the quantum of the grant is to be decided on a case-by-case basis;
- (c) Toll rates are indexed to the wholesale price index;
- (d) A 10-year corporate tax holiday can be availed of within the 20 years after commissioning of the project;
- (e) External commercial borrowing of up to 35 per cent of the project cost is permitted;
- (f) Import duties on modern and high-capacity road construction equipment have been removed;
- (g) Foreign direct investment up to 100 per cent is allowed. The total foreign equity can be up to 15 billion rupees;
- (h) The operator can develop and operate wayside amenities such as restaurants, motels/hotels, rest/parking areas, petrol pumps and workshops;
- (i) Infrastructure as defined in Section 80-1A (12) of the Income Tax Act now includes roads;
- (j) Investment in NHAI bonds is exempted from capital gains tax.

NHAI has taken up the development of the National Highway Development Project (NHDP), which comprises the Golden Quadrilateral and north-south east-west corridor projects. In addition, NHAI has also been entrusted with the responsibility of developing other national highways, which include roads linking major ports and areas of major economic activity.

3.2 NHAI & THE NATIONAL HIGHWAY DEVELOPMENT PROJECT

The National Highways Authority of India was constituted by the National Highways Authority of India Act of 1988. It is a statutory authority tasked with the administration, development, operation, maintenance and management of the specific National Highways that it is mandated with. The NHAI became effectively operational in February 1995 with the appointment of a full-time Chairman and other Members. The NHAI works as a wing of the Ministry of Road Transport & Highways (MoRTH), previously known as the Ministry of Surface Transport (MoST).

In the National Highways Sector, the Ministry is primarily responsible for planning, development and maintenance of National Highways in the country. The Ministry evolves standard specifications for roads and bridges in the country and serves as the main source of technical knowledge on roads and bridges.

The primary mandate of NHAI concerns the time and cost-bound implementation of the National Highways Development Project (NHDP) through a host of funding options which also includes external multilateral lending agencies. Work mainly comprises, the strengthening and four-laning of high-density corridors. Other mandates include;

- ❖ The provision of road connectivity to major ports.
- ❖ Involving the private sector in financing the construction, maintenance and operation of National Highways and wayside amenities.
- ❖ Improvement, maintenance and augmentation of the existing National Highways network.
- ❖ Implementation of road safety measures and environmental management.

❖ Introducing Information Technology in construction, maintenance and all operations of NHAI.

As can be noted, as a wing of the Ministry NHAI does, in many respects, mirror the roles and functions of the Ministry. For example, both are charged with the development and maintenance of the National Highways within the country. Similarly, both the Ministry and NHAI have been/are involved in the development of National Highways as well as BOT schemes. Nevertheless, if the NHAI were to be mandated the entire National Highways network then the responsibilities of the two would become clearer. Whilst the role of the Ministry would continue to be the guardian of the nation's National Highways, NHAI would now be the implementation arm of the Ministry, with no overlaps. For their part, the Ministry would oversee the work of NHAI, provide guidance where required but, most importantly, be primarily concerned with policy advice to Government as well as the implementation of the objectives of Government policy.

As part of its establishment, NHAI was mandated with the responsibility for some 13,000 kilometres of National Highways Development Programme (NHDP) projects, this being the largest ever highways project to be implemented within India, with an estimated project cost of around INR 65,000 Crores. The project comprises both the strengthening and widening to four to six lanes of already identified National Highways within the country. This has been defined as the Golden Quadrilateral (GQ) which links the four metropolitan towns of Delhi, Kolkata, Chennai and Mumbai, comprising some 5,846 km and the North-South link from Kashmir to Kanyakumari and an East-West link from Silchar to Porbandar with some 7,300 km. The NHDP also includes 695 kilometres of improvement of National Highways leading to major ports of the country, and a further 452 km of 'other' National Highways. The NHDP project is estimated to cost 540 billion rupees and is being financed through cess on petrol and diesel, market borrowing, multilateral funding and private capital.

On the 15th August 2013 the Government of India further announced an ambitious post-NHD Programme. The announcement identified that a further 10,000 kilometres of National Highways were to be widened and improved on similar lines to that of the original NHD Programme, employing private sector participation using the concept of Build, Operate and Transfer (BOT).

In general, the private sector has been involved in implementing a large number of National Highway projects, including those relating to NHDP. Associating the private sector in the development of highways, however, has not been an easy task as the experience of NHAI shows. It was initially thought that it would be possible to develop the national highways, particularly those relating to high traffic volume, exclusively through private sector participation with some support from the Government.

However, it has been noted that the success in associating with the private sector has not reached the level initially envisaged. The experience indicates that the main issue requiring resolution is traffic risk. It should be further noted that the private sector has been involved in a number of road sector projects prior to the National Highway Authority of India taking up the development of the national highways network. However, this involvement has been mainly related to bypasses and bridges being implemented by the private sector on the basis of BOT.

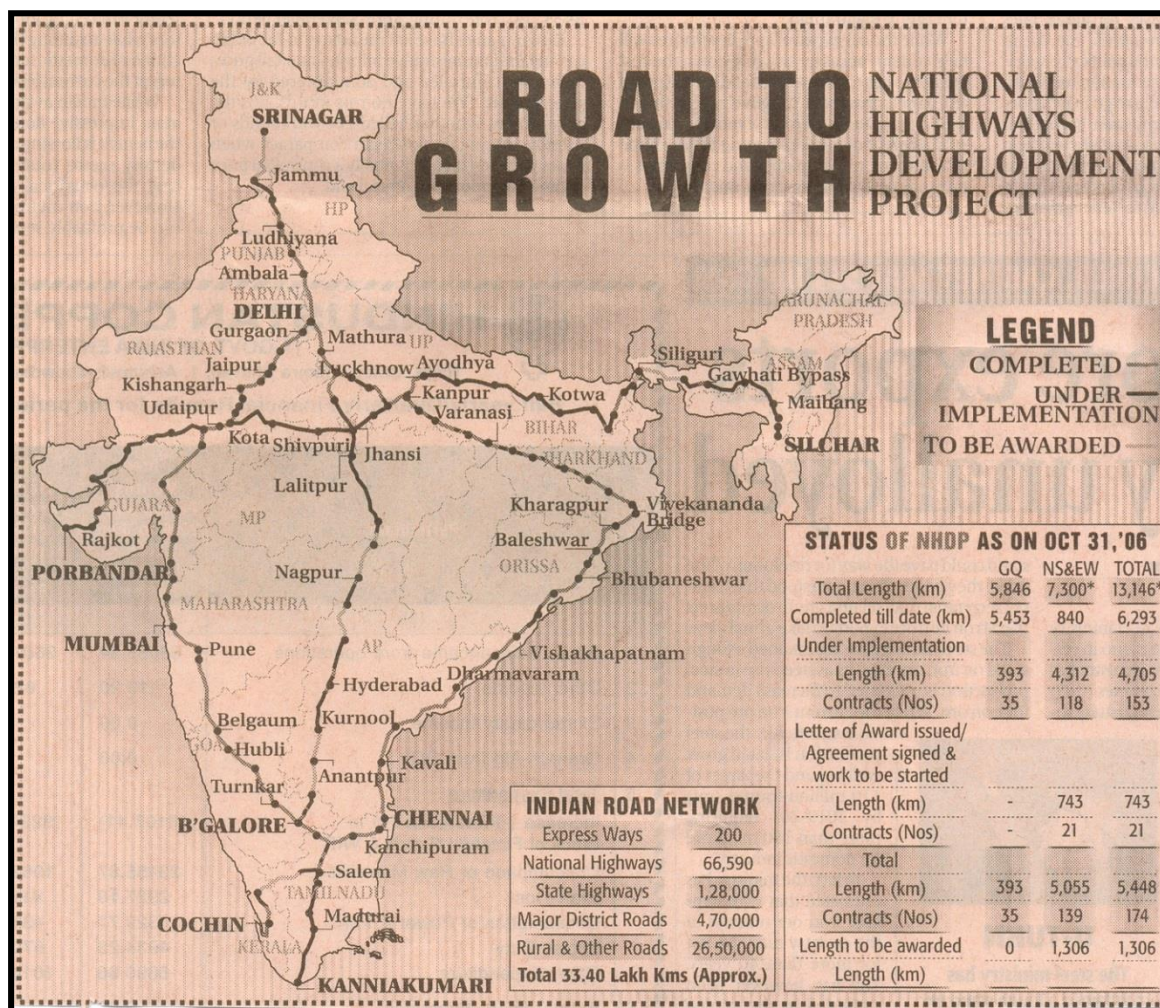
To date the status of the National Highways Authority of India National Highway Development Programme can be summarized as shown in the Table.

In order to encourage greater involvement of the private sector, the Government of India also decided to follow the annuity approach in which the concessionaire does not need to

Status of NHAI Contracts by Type Number and Length			
Implementation basis [actual & proposed]	Contracts	Kilometres	Total kms
NHAI	192	5,385.99	5,972.39
MORTH	18	496.40	
MSRDC	2	90.00	
World Bank	34	1,802.17	4,638.93
Asian Development Bank	46	2,632.30	
Japan Bank for International Co-operation	8	204.46	
Build Operate & Transfer	164	13,494.97	15,289.59
Annuity Basis	25	1,359.57	
Special Purpose Vehicles	14	435.05	
Total	503		25,900.91

bear the commercial risks involved with road operation. Under this approach the concessionaire provides road services in accordance with the project requirements as stipulated by NHAI. The concessionaire is compensated with fixed semi-annual payments for his investments in the project. The project is awarded to a concessionaire on the basis of the lowest annuity payment demanded. The payment made to the concessionaire takes into consideration the cost of construction and maintenance during the concession period, the cost of raising funds for financing the project and a return on equity.

Figure 1 Current Status of National Highways Development Project



Source: Economic Times of India

Annuity payments are made after the project is implemented. The system of payment is based on incentives, which ensures that the roads are maintained in good condition and equity of service provided in accordance with the predetermined standards. In a BOT type of arrangement, the concessionaire is allowed to keep all toll revenues it collects. In addition, NHAI also provides equity or a cash grant up to 40 per cent of the total cost of construction of the project. However, no such incentive is allowed in the case of annuity projects.

NHAI also uses the Special Purpose Vehicle [SPV] for the development of national highways, this model being increasingly used for the development of highways linking major ports. NHAI establishes an SPV by associating with the concerned Port Trust and raises loans in accordance with the predetermined debt-equity ratio. The loan is serviced through operation of the facility for toll collection.

Although the private sector is now playing a role in the development of national highways by NHAI, the major source for funding has been through a cess on petrol and diesel. The contribution of the private sector has been about 20 per cent of the costs of National Highway Development Projects. However, the share of the private sector is increasing as it gains more confidence in undertaking road projects through partnership arrangements with the public sector and the overall environment becomes more conducive to private participation.

Overview

The development of the transport sector is a prerequisite for sustained growth of the economy. Availability of adequate transport services is also a key to encouraging foreign direct investment. In this context, an improved transport network has played a crucial role in China becoming the largest recipient of foreign direct investment. India has long suffered from transport bottlenecks, mainly due to budgetary constraints but conscious efforts have and are being made to overcome this and improve the transport infrastructure within the country.

The importance of private sector participation in bridging the resource gap and improving the operational and managerial efficiency has been recognised. In assessing the role of the private sector, a distinction has been made between infrastructure and services. The basic infrastructure, with a few exceptions, lies in the hands of the public sector with the long-term goal being to provide open access to transport infrastructure for all modes and to involve the private sector in the provision of infrastructure facilities. With this end in mind, “market principles” are being applied for the development of transport infrastructure and services with budgetary funds being used to make private investment in fixed infrastructure more attractive.

Some success has been achieved in associating the private sector in ports and national highway projects. Efforts are also being made to make private participation models such as BOT more investor-friendly in the road sector by focusing on the downside risks of low traffic volumes.

Drawing on lessons and experiences from the past, the Government is formulating new policies, offering more attractive incentive packages and developing mechanisms to ensure greater participation of the private sector. With these new initiatives, it is to be anticipated that the involvement of the private sector will increase in the future as the sector gains more confidence in undertaking transport projects through partnership arrangements with the public sector and, the overall environment becomes more conducive to private participation through the conscious efforts of Government.

3.3 PSP AND THE EXPERIENCE OF UTTAR PRADESH

Within the State of UP, experience of PSP, other than cash contracts, is limited to work that has been undertaken by the UP Government and the State Bridge Corporation Ltd [SBCL]. Some three projects have been identified as detailed below.

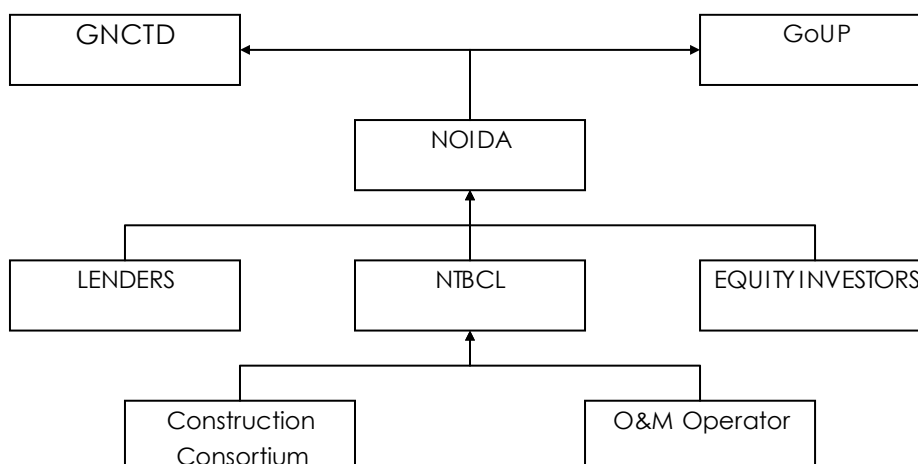
Noida Toll Bridge Company Limited

In February 2014, and some four months ahead of schedule, an eight lane expressway in UP connecting Noida to South Delhi across the Yamuna River, was completed. The project comprises a 6 kilometre link with a 550 metre major bridge, and 3 further minor bridges, costing around INR 3,710 million. With a 28 lane toll plaza, state of the art payment technology allows both cash payment and electronic payment through a transponder system with a ‘chip’ attached to the vehicle.

The key stakeholders involved in the project were as follows;

- ❖ The Government of India
- ❖ The Government of Uttar Pradesh & the National Capital Territory of Delhi
- ❖ NOIDA, as the body granting the concession
- ❖ IL&FS, the sponsor
- ❖ Multi-Lateral Participation – the World Bank providing a line of credit to IL&FS
- ❖ Kampsax – the project consultants
- ❖ Mitsui Marubeni Corporation – EP&C contractor
- ❖ Intertoll – the O&M operator

The Noida Toll Bridge Company Limited was established as a Special Purpose Vehicle [SPV] to both construct and operate the Delhi Noida Toll Bridge on a build, own, operate and transfer (BOOT) basis with IL&FS acting as the project sponsor, developer and investment banker to the Project. The assignment involved project scoping, conceptualisation, structuring, technical, legal and risk assessments, negotiation of the concession agreement, bid documentation and award of contract, financial engineering and, fund mobilisation. The structure for the project is as shown below;



The salient features of the project are as follows;

- ❖ Implemented as a BOT project with a 30 year concession period
- ❖ Apart from an equity contribution of US\$ 2 million from NOIDA, the entire debt/equity funding was arranged by IL&FS
- ❖ Preliminaries to Financial closure were undertaken over the period April 1992 to Dec 1998
- ❖ Construction was from December 1998 to February 2014
- ❖ The Noida Toll Bridge Company Limited NTBCL provided the legal and administrative framework to manage the entire process
- ❖ **Salient features of concession agreement;**
 - Assured rate of return of 20% after tax
 - Concession period extendable for two year intervals if return not realised
 - Facility to be transferred to NOIDA free of cost at end of concession
 - Traffic risk assumed by NTBCL
 - In the event of nationalisation and/or force majeure Noida will take on the debt and a part of the assured return to shareholders
- ❖ The agreed initial toll rates were: Two wheelers INR 7; Cars & Three wheelers INR 15; LCV INR 30 and, Buses/Trucks INR 35. These rates are subject to annual revision based on rates of inflation
- ❖ Actual cost of project [in USD] was as follows: EPC \$43.12 million; Contingencies \$9.62 million; Design, supervision & management charges \$3.64 million; Interest during construction \$ 11.59 million; Land & R&R \$2.45 million [Total \$87.43 million]
- ❖ The financing plan was as follows;

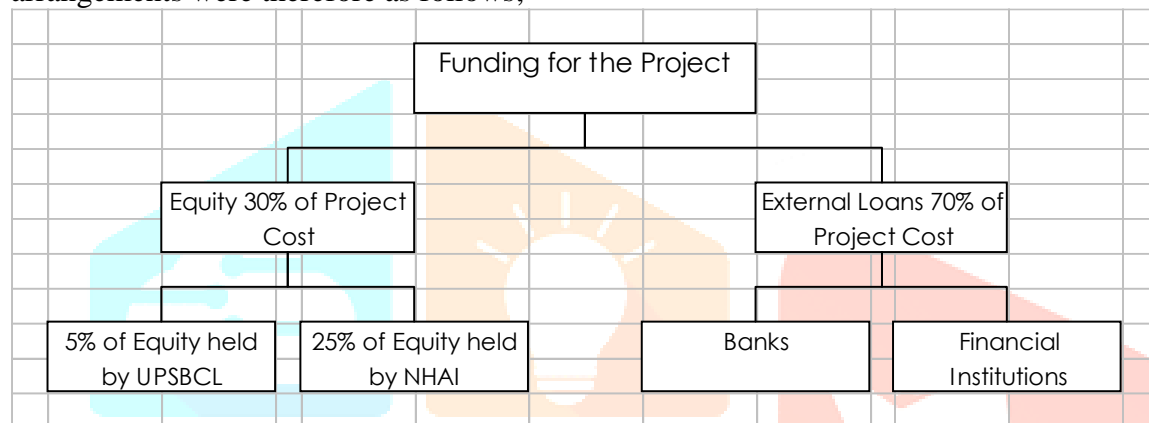
Equity		Debt	
IL&FS	7.68	Deep Discount Bond Issue	10.67
NOIDA	2.10	World Bank line of credit	12.81
IFCI	1.05	RTL from FI/Banks	37.48
FCD Issue	4.44		

Int'l Funds [AIG, Prudential]	8.54		
Intertoll [O&M operator]	2.27		
Sub Total Equity	26.08	Sub Total Debt	60.96

Moradabad Bypass

The company tender was accepted as the lowest bid but as a part of the conditions, NHAI required the bidder to take up 15 per cent of the equity in the Moradabad Toll Road Company Limited (MTRCL), in terms of 'paid up capital', which could then not be withdrawn earlier than five years after commencement of commercial operations. This had not been realised by UPSBCL and has resulted in a reduction in profit margins and was probably an important factor in their selection given that their bid was significantly lower than the second lowest bid.

Funded through both equity and loans the total cost of this project was INR 100 crores with a debt equity ratio of 70:30. Both NHAI and the UP State Bridge Corporation Ltd [UPSBCL] supplied the equity with the UPSBCL being the engineering procurement and construction contractor for the project. The funding arrangements were therefore as follows;



Chhohan Bridge

The Chhohan bridge project, located between the areas of Varanasi and Sonbhadra has been developed as a BOT project with toll collection commencing January 2012. In July 1996, the UP State Government sanctioned the construction of bridge over river Sone at Chopan, by way of a BOT scheme, with a cost of INR 51.3 crore, which was later revised by the Expenditure & Finance Committee to INR 43.42 crore. As a part of this BOT scheme it was also stipulated that 30 percent of the cost would be financed by the State with the remaining 70% to be financed through loans from financial institutions. The UPSBCL was mandated with the responsibility for the works and was also authorized to collect tolls over a period of 12 years. Thus, whilst providing a loan of INR 14 crore, the State Government also agreed to provide guarantees to other loan providers given that;

- ❖ The company completed construction in 30 months from April 2010 and that in the case of delays a penalty would be imposed or, should the project be completed early then 25% of the State loan would be waived.
- ❖ The bank loans along with the interest, and the government loan principal, would be paid from toll revenues, and,
- ❖ The toll rate would be decided by the company.

The final cost of the bridge was some 46% of the original cost estimate. Since the opening of the bridge to traffic, annual revenue has been of the order of INR 700 to 800 lacs.

In addition to the above, the UP State Government contracted consultants [Rites Ltd] to review the situation within the State concerning the potential for ROB's. Following the completion of the study the consultants identified some 100 potential ROB locations. To date, UPSBCL has identified some twenty projects from

this list and given them to Feedback Consultants to undertake feasibility studies/DPR on these potential ROB's. The intention is that given a positive financial evaluation the viable projects will be taken up on a BOT basis.

A Project Plan for PSP in the UP Roads Sector

4.1 THE IMPLEMENTING AGENCY

When a road agency contracts or out-sources work, the type of contract and specifications are the remit of the agency. In terms of the contract, three main choices are available, namely, lump sum, measured and, cost reimbursable contracts. Under lump sum and measured contracts, payment is based on the agreed price or tendered rates for the work. These are essentially price based contracts. Under cost reimbursable contracts, however, these are, as the name implies, related to payment based on actual costs. The latter can include incentive payments.

In terms of risk, price based contracts place the risk on the contractor to complete the works within a given budget. With cost based contracts, however, the risk primarily resides with the contracting agency although, as mentioned above, the introduction of incentives may go some way to lowering such risk. The latter type of contract, nevertheless, does require significant levels of staff input.

In UP, price based contracts tend to be the most employed contractual vehicle of PWD whereby, specifications, which define the work, are provided to the contractor. Such contracts are easy for the contracting agency to monitor but they do require significant supervision. As the design, methods and materials are defined and cannot be changed, the contractor has little or no innovative incentive. A more recent development for such contracts in this area, outside of UP, has been the move towards the specification of the finished works and the level of service to be provided by the final end product, rather than the works to be undertaken. Supervision is therefore reduced significantly and this also provides the contractor with the incentive to seek new innovations to meet the level of service specifications required.

Another potential problem that can hamper the contracting out of work is the capacity and experience of the local construction industry/consultants. Similarly the contracting agency cannot be expected to undertake all aspects of a road project from DPR, to preparation of bid documents, to award of contracts, to supervision of implementation. As such consideration should be given to the development of both the local construction and consultant industry, for outsourcing, if required.

Given the above it is essential that the contracting or roads agency develop its key objectives and mission statement as well as performance targets. Only in this way can the numbers and expertise of the staff be defined. In addition to this it will also be key to the roads agency fulfilment of its mission statement and objectives, that it has a Management Information System that provides essential information for planning and deployment and control of resources. For planning, this should include a Road Management System [RMS] that, at the very least, encompasses;

- i. Network planning data
- ii. Road inventory data
- iii. Road condition data
- iv. Traffic data

A RMS should thus provide the necessary information for decisions to be made on;

- i. The necessity and timing of routine and periodic maintenance
- ii. Rehabilitation, strengthening and upgrading requirements and timing
- iii. Road improvements in terms of geometrics and capacity and timing

The system should provide the means whereby it provides the basis for the selection of projects that represents the allocation of resources to achieve the required/best road conditions for the user within the funding available. Such a system [with regular monitoring of the condition of the network], is essential to provide awareness of the maintenance requirements of the network.

In addition to the above, there should also be a Financial Management System [FMS] that both supports and complements the above. As such it should have the capability to provide the means to;

- i. Plan expenditures
- ii. Compare alternative strategies
- iii. Monitor implementation, and,
- iv. Account for the use of funds

The UP State Highways Authority [UPSHA] has been identified as the entity that has not only been mandated to implement State highway projects but also that the implementation of such should be under a 'commercial' format. As such it has also been noted that the GoUP has already established the UPSHA for PSP, privatisation and outsourcing. The report also identifies a proposed Organisational Structure and Action Strategy for UPSHA.

At this stage it is therefore assumed that the UPSHA will gradually become the managers of a part or all the State Highways network within UP and will additionally be the vehicle for the development of PSP within the State. Irrespective of these assumptions it will continue to be of paramount importance that a computerised UP State Highways Management System be developed and implemented in order that the State roads network can be scientifically reviewed and managed.

4.2 TYPES OF PSP MODELS THAT MIGHT BE CONSIDERED

PPP in the form of BOT type projects, these being the most common types currently being implemented within India, can take many forms from simple commercialisation to full privatisation. Here the generic types of BOT are.

Joint venture type PSP/PPP

In joint venture type PPP's there is joint commitment of the public and private sector. The investment participation by the private sector is thus lower than 100%. The private and the public parties in the project share the responsibility, the risk and the financing as shareholders in a jointly set up contract or public enterprise. Although exceptions exist, they usually share in the risks and in the profits, should they exist, to the extent of their share in the project. In a pure type of joint venture project, unlike a contractual arrangement, the enterprise will act as a separate project entity, usually called Special Purpose Company (SPC) or Special Purpose Vehicle (SPV).

The main advantages of this latter type of PPP are that all parties involved are equally concerned with achieving the objectives set out for the project, i.e. optimise all elements of costs, benefits and risks, and that the expertise of both sectors can be used in the whole life-cycle of the project. The main disadvantage is the restriction of competition after entering into an alliance with a private consortium.

Concession type PSP/PPP

In a pure concession type PPP the private sector takes on 100% of the investment. Instead of sharing project risks, public and private parties divide the identified risks by contractual arrangements concerning responsibilities, risks and financing; e.g. the government would bear the political risks whereas the private party would take on the associated construction and commercial risks.

Under such concession types the private party uses public assets for the provision of services for a specified period based on a concession agreement. Revenues may comprise, for example; sales or leasing of land, creation of commercial facilities and/or, user charging [tolls]. The government would continue to maintain the role of both legislator and licence provider. After the concession period has elapsed, three options are then available:

- ❖ The contract can be extended with the same private party being entitled to continue to exploit the project for a further agreed period. As such, the ownership does not change.
- ❖ The ownership is transferred / returned to the public party and the right to exploit the project is therefore transferred back to Government. This might then involve a re-tendering process whereby the original concessionaire, or any other party, can tender for the right to have ownership.
- ❖ The project is de-commissioned. In theory the duration of the project should equal the economic life of the project as only in such a situation, which is usually the case with joint venture type PPPs, will optimal use be made of life cycle costing. In the case of transport infrastructure however, the design life may exceed the period of the initial concession.

For both joint venture and concession type PPPs, the private sector is involved in at least the construction and the operation phase. In the case of a joint venture PPP scheme however, the private sector can be involved at a far earlier stage in the project, namely the design and, possibly, the preparation phase of a project. Concession type PPP schemes on the other hand are often used later in the project cycle wherein a preliminary design for the project is already available in advance of the concession tendering.

Types of PSP options in the roads sector

Conventional Contracts: PSP already exists in UP. Currently PWD have been involved in what can generally be termed as conventional civil works contracts. These types of contract are item rate contracts whereby the private contractor receives payment for completion of a set of scheduled items over time. Under such a type of PSP contract, the contracting authority [PWD] generally bears the majority of the risks associated with the project. Such projects generally have a fixed price and fixed time provisions as common features and as such are essentially 'item rate' or 'cash' contracts. The key features of this type of project are as follows;

- i. **Selection process:** The contractor is selected using a competitive bidding process. Contractors submit their bids for the project, based on the design requirements outlined in the tender and, within a given time frame. As a part of the Request for Proposals [RFP], a Bill of Quantities [BQ] is supplied and the contractor specifies the rates against each item. The contractor who quotes the overall lowest rates, and hence the lowest financial bid, is therefore selected. The quantities given in the BQ are, however, only provisional/indicative, and are supplied in order to provide a common basis for bidding.
- ii. **Design:** The design for a project is procured either 'in house' or obtained by way of a technical consultant. The contractor's responsibility is to construct the project as per the design requirements outlined in the tender and, within the specified time frame. In general, the contractor has little flexibility in design and cost optimisation.
- iii. **Finance:** The responsibility for project finance lies entirely with the executing agency. The contractor receives a mobilisation advance prior to the commencement of work activities, with subsequent payments being made according to project milestones and/or contractual arrangements.
- iv. **Construction and completion:** Such contracts do not provide any incentives for early completion. A contractor has very little incentive to complete a project ahead of schedule compared to contractors/developers under other potential PSP/PPP structures. Such projects can also face problems relating to land acquisition, the moving of utilities etc., even though the responsibility for providing a site 'free from encumbrances' lies with PWD. Start dates may not therefore coincide

with site possession date and delays in handing over an entire site may occur. Cost over-runs can therefore ensue thus increasing the financial burden on PWD.

As noted above, quantities given in the BQ are provisional, with the basis of payment reflecting the actual volume of work undertaken. The volume of work is measured by the contractor, verified by the Engineer, with the cost being calculated based on the rates given in the tender BQ. For any other additional items, not contained within the BQ, the Engineer will agree and fix a price for such, for and within the terms of the contract. Contracts of this nature can therefore be subject to price variations. Furthermore, contracts also provide for price escalation at a fixed rate, irrespective as to actual prices. A contractor under such a project structure therefore has little incentive to either contain costs or explore cost reduction opportunities.

- v. **Operation and maintenance:** In general there will be a contract liability period following completion of construction during which time the contractor will guarantee the quality of the work. Thereafter the risk associated with quality and the liability for subsequent maintenance and repair becomes that of the executing agency.
- vi. **Supervision and maintenance:** Such a contract is administered by the executing agency and/or a supervision consultant. As discussed above, this allows for variations in both form, quality and quantity of works executed. As such this type of PSP does not have a fixed price and the final price can vary, subject to escalations linked to various factors such as labour, materials, plant & equipment, foreign input costs etc. The construction risk is therefore that of the executing agency in terms of cost variations, overall cost and time over-runs.

With the overall responsibility for supervision and maintenance lying with the executing agency, both time and effort is required for the supervision of the activities of a contractor. Given that variations require approval, this can result in slow decision making due to procedural issues. Furthermore, bearing in mind the enormity of the tasks and effort required it may be that effective supervision of any particular contract may not be possible and delays from project cost over-runs may be inevitable.

Build, Operate & Transfer concessions [BOT]: A toll based concession scheme is one of the ways in which PSP under a Public, Private Partnership can be structured within the roads sector. In general, interest in a project is stimulated based on the forecast of potential use, the likely financial revenues that could accrue from the operation of a toll based facility and, the consequent financial viability of such a project. Under such a scheme the executing agency can be a private company or a consortium which, through a competitive bidding process, is adjudged as being the preferred bidder. The executing agency is generally responsible for the design, building, financing and operation of the project over a set period of time, which is identified in the concession agreement between the two parties. The executing agency, or concessionaire, will assume almost all the risks associated with construction, financing and operation, as well as the risks associated with traffic volumes, over the given time period. With toll revenues being collected by the concessionaire, high traffic volume roads can provide the opportunity for attractive returns on capital. In terms of Government, their primary responsibility would rest with the provision of a site 'free from encumbrances'. The key features of this type of project structure are as follows;

- i. **Selection process:** The concessionaire would be selected through a competitive bidding process. As a part of the RFP, Government would provide a DPR for the project. However, under such a PSP structure, the concessionaire has a relatively high degree of freedom in terms of project design and the optimisation of the required design standards and specifications as a part of that design. In general the result is that in many cases cost estimates can be lower than original estimates and are likely to vary from bidder to bidder.

The bidding and award criteria therefore revolves around any capital grants or support funding required by the bidder or, as may occur in some cases, payments, quoted by the bidder, to be made to the facility provider. In all cases the concessionaire would bear the cost of design, construction, financing and operation with no further financial burden being placed on the facility provider.

- ii. **Design:** A base design would be provided to the concessionaire as a part of the DPR. The concessionaire, however, would be free to improve any design in consultation with the required

authority. The final design would be required to meet the specifications and standards as laid down by the facility provider. Full responsibility for the design rests with the concessionaire.

- iii. **Finance:** Responsibility for financial closure of the project would be borne in its entirety by the concessionaire. In some cases, however, it may well be that the private sector is reluctant to bid for a project due to low viability. In such instances where a project is deemed essential, it may be necessary for certain financial support to be offered to a potential concessionaire. Thus for projects that may not be viable on a standalone basis some support to attract PSP, in the form of what is termed 'viability gap' funding, may be required.
- iv. **Construction and completion:** The entire project costs are borne by the concessionaire. Thus, the focus of the private sector developer is on project completion plus any potential for cost escalations and over-runs. The concessionaire has the incentive for early completion in that once the project is completed and operational, cash flows will commence.
- v. **Operation and maintenance:** The responsibility for the operation and maintenance of the project is with the concessionaire over the concession period. It is in the concessionaires best interests to ensure timely maintenance and hence the optimisation of costs. Similarly, the required quality of service can be ensured through proper monitoring by the facility provider.
- vi. **Supervision and maintenance:** Given that virtually all costs and risks are borne by the concessionaire, except supervision to both ensure and enforce standards, the responsibility for which being that of the facility provider, there are very few other supervisory requirements. This is in complete contrast to that of conventional cash contracts.

Annuity based concessionary schemes: Annuity based concession schemes have been developed to encourage PSP for road sections that may not yield sufficient revenues to make private involvement in a project financially attractive and viable. Under such a scheme the private company or consortium, selected through the competitive bidding process, would receive fixed annuity payments based on criteria identified in the concession agreement. The private sector 'vehicle' identified for the project would be responsible for design, construction, financing and operation. Clearly such a scheme is attractive where traffic and revenue risk are an important element in the project.

- i. **Selection process:** As above for BOT.
- ii. **Design:** Under such a scheme the base design would be supplied to the concessionaire, by way of the DPR, with the concessionaire being required to construct the project in accordance with the DPR. Whilst some flexibility may be permitted in design optimisation, the final design will be required to meet the standards and specifications as laid down by the facility provider.
- iii. **Finance:** Financial closure for the project rests with the concessionaire. The risks associated with financing are, however, somewhat reduced given that fixed annuity payments are guaranteed by the facility provider in accord with the concession agreement.
- iv. **Construction and completion:** The risks associated with construction and completion, are similar to that for BOT concessions.
- v. **Operation and maintenance:** The responsibility for project operation and maintenance rests with the concessionaire. High quality levels of service can be ensured through efficient monitoring by the facility provider. There is no traffic risk borne by the concessionaire as this rests with the facility provider.
- vi. **Supervision and maintenance:** As above for BOT.

Special Purpose Vehicles [SPV] : A SPV is established to implement a specific project on a toll basis and comprises both the private sector and/or a government agency(s) as equity partners. An example of such a project is the Moradabad bypass. This project was implemented by the National Highways Authority of India [NHAI] on a DBFO [Design, Build, Finance and Operate] basis. A SPV, the Moradabad Toll Road

Company Limited [MTRCL], was floated by NHAI to construct, operate and maintain the project over a 30 year concession period. The equity partners comprise, NHAI and the UP State Bridge Corporation, the construction contractor.

- i. **Selection process:** Generally a direct appointment
- ii. **Design:** The executing agency, or SPV, is responsible for the design.
- iii. **Finance:** Projects developed under such a scheme are similar to that of a toll based concession. The factor that differentiates this from other schemes is the choice of executing entity. Projects financed under such a scheme would/can be financed partly by the provider through its own resources and/or secondly by equity contributions from the SPV. As a specific entity, the SPV can also borrow funds from the capital market to finance the project with such loans being serviced from the revenue streams of the project.
- iv. **Construction and completion:** In general, the SPV would not normally undertake construction but rely on a selected contractor for this. As identified above, in the example of the Moradabad bypass, this was not the case. In general, and given that the construction contractor is appointed from outside the SPV, such a scheme would not benefit from cost efficiencies and ensured quality as to be found with BOT projects.
- v. **Operation and maintenance:** As above for BOT.
- vi. **Supervision and maintenance:** As above for BOT.

Risk comparison of the different structures

Whilst the risks associated with any of the identified PSP/PPP structures will, to some extent, be directly related to the Concession Agreement and the contents therein, in general a comparison of the structures in terms of the bearer of the risks is as follows:

Risks	Cash Contracts	BOT Concessions	Annuity Concessions	SPV Concessions
Development				
Statutory Clearances	PWD	PWD	PWD	PWD
Project free from encumbrances	PWD	PWD	PWD	PWD
Financing & financial closure	PWD	Concessionaire	Concessionaire	Concessionaire
Approvals from other entities eg., Railways	PWD	Concessionaire	Concessionaire	Concessionaire
Construction				
Design	PWD	Concessionaire	Concessionaire	Concessionaire
Quantity & price variations	PWD	Concessionaire	Concessionaire	Concessionaire
Quality	Contractor	Concessionaire	Concessionaire	Concessionaire
Local permits & clearances	Contractor	Concessionaire	Concessionaire	Concessionaire
Delays	PWD	Concessionaire	Concessionaire	Concessionaire
Completion	Contractor	Concessionaire	Concessionaire	Concessionaire
Operation				
Cost over-runs	PWD	Concessionaire	Concessionaire	Concessionaire
Traffic & revenue	PWD	Concessionaire	PWD	Concessionaire

Maintenance	PWD	Concessionaire	Concessionaire	Concessionaire
Competition	PWD	Concessionaire	PWD	Concessionaire
Capacity	PWD	Concessionaire	PWD	Concessionaire
Quality of service	PWD	Concessionaire	PWD/Concessionaire	Concessionaire
Road safety	PWD	Concessionaire	PWD/Concessionaire	Concessionaire
Divestment				
Statutory payments	PWD	Concessionaire	Concessionaire	Concessionaire
Divestment requirements	PWD	Concessionaire	Concessionaire	Concessionaire
Defects Liability	PWD	Concessionaire	Concessionaire	Concessionaire
Project Life Cycle				
Regulatory	PWD	Concessionaire	Concessionaire	Concessionaire
Legal	PWD	Concessionaire	Concessionaire	Concessionaire
Commercial & financial	PWD	Concessionaire	PWD/Concessionaire	Concessionaire
Debt repayment	PWD	Concessionaire	PWD/Concessionaire	Concessionaire
Force Majeure	PWD	Concessionaire	PWD/Concessionaire	Concessionaire
Termination	PWD	Concessionaire	Concessionaire	Concessionaire

As can be seen from the above, in general both a BOT and SPV structure allocates the vast majority of the risks associated with a project to the concessionaire. In the case of Annuity structures, only the risks associated with traffic/revenue and operation would not be considered to be that of the concessionaire. What has been defined as Cash Contracts allocates the least responsibility and risk to the contractor.

Principal risks for the public sector

For any government embarking on PSP and PPP, however, the following risks are of importance:

- ❖ Within any PSP/PPP agreement both the rights and obligations of both parties in the contractual arrangement will require to be defined. The rights afforded to the private sector party may, however, act as a limiting factor on the public sector party. A classic example of such a policy problem would be a limitation on the construction of a new road if it were deemed to compete with a toll road being financed under a PPP scheme.
- ❖ When a government embarks on a PPP scheme, the public entity generally has diminished power in effecting its requirements. The most serious of problems being when a private party refuses to carry out a part of its contractual obligations. The last course of action open to the public entity may well be the cancelling of the agreement which can obviously have far reaching implications.
- ❖ As more and more PSP/PPP schemes are initiated, the public sector can run the risk of creating monopoly positions whereby, a contractor/concessionaire already working on/operating an existing project may have a greater chance in securing a further contract for a similar type of infrastructure project
- ❖ A final important risk that the public sector should note is that of bankruptcy. The involvement of the private sector in any transport infrastructure scheme will always carry the risk that the 'contractor' may go bankrupt. Under such circumstances this will require the public partner to provide alternative solutions and involve additional costs.

Principal risks for the private sector

The risks for the private sector in any PSP scheme are generally related to both the role and the position of Government. Unlike the private sector, Government is required to take account of many interests in addition to that of PSP or a PPP scheme. There may also be varying degrees of acceptance of PPP schemes at different levels of Government, with differing opinions as to how to undertake an infrastructure project. There may also be the possibility that future policy may change thus affecting the viability of a PPP scheme. Finally, the possibility that the public sector partner may change the objectives and/or appraisal introduces uncertainty for the private sector partner over the duration of the scheme.

Allocation of risks

A key issue relating to PSP concerns the allocation of risks associated with a given scheme. Earlier, two types of PPP schemes were distinguished namely, joint venture and concession. For both schemes risk allocation is different. In a joint venture both the public and the private sector become shareholders and both share equally in both the profitability and the risks. However, a concession is structured differently with risks being divided and not shared. The public sector would, for example, bear most of the non-project risks such as the political and legal risks, whereas the private party takes on the responsibility for the initial project risks, such as construction and commercial risks.

Choosing a concession type PSP/PPP scheme therefore implies that project risks should be divided between both the public and private parties involved with the division being based upon principles, whereby, the risk should be assumed by the party which can best:

- ❖ Control the events that may lead to the risk occurring.
- ❖ Manage the risk, if it occurs.
- ❖ Carry the risk if it cannot be controlled.
- ❖ Insure the risk.
- ❖ Sustain the consequences if the risk occurs.

An examination of project associated risks would tend to suggest that the management skills of the private sector may be better placed to manage these. Given this, then it can be further intimated that this better understanding of the risks involved may well result in lower overall costs.

As can be seen in large construction projects in the public sector, these are all too frequently plagued with cost over-runs which under PPP would be transferred to the private sector whom generally have tighter controls over such matters in terms of sub-contractors, staff accountability etc. The transferring of responsibility to the private sector for both design and operation can also be beneficial given that the supplier will need to focus on life cycle costs to ensure a return on the capital invested. Thus, by transferring the risk associated with such projects to the private sector it can be implied that overall quality of the services provided may well be enhanced.

The introduction of PSP with PPP

In order to introduce PPP, a viable project first needs to be identified. In addition there should be a favourable economic climate and, most importantly, the regulatory framework and the public sector administration that both supports and encourages PSP should be in place and functioning. At this point it should be remembered that the objective behind PSP in PPP should be to further financial investment in projects that provide transport infrastructure and not necessarily engineering projects that are to be funded in financially innovative ways. Nevertheless, that is not to say that any PPP in a project should not be innovative and a change in emphasis, whereby, for example, functional or performance criteria/requirements are specified rather than the normal technical/engineering detail, might well be worthy of consideration.

In all cases of PSP in PPP, there exists worldwide, a large variation in PPP mechanisms/structures. Common to all, however, is the need to find a balance between risk and public sector support in order that both parties in the partnership can benefit. Too little support and the project may be abandoned and too much support may dissipate/negate the project benefits to the public sector.

If a project is deemed viable by the private sector, then it can be assumed that the risks are acceptable in terms of the potential for realisation of an acceptable return on the investment through financing via equity and debt. On the other hand, should a project be deemed a potential risk, this may require action from the public sector to mitigate or 'shoulder' some of the burden of that risk given that the project is considered to have socio-economic benefits to society, in order to make it commercially attractive for PSP.

The participation of the public sector in such partnerships comprises risk sharing, followed by equity arrangements and then, if necessary any indirect means that are appropriate/necessary, to enhance the financial attractiveness to the private sector and hence reduce the financial risks. The provision of indirect forms of finance enhances the attractiveness of a project and thus reduces financial risk and, in practice is the most common method employed. Examples of the various forms of financial instruments that can be used include;

- ❖ **Revenue guarantees :** Unexpected shortfalls in revenue are funded by the public sector
- ❖ **Other guarantees:** This can include payments and purchases for other general risks that the private sector may be unwilling to bear.
- ❖ **Tax holidays:** Exemption from taxes for a given period following project completion.
- ❖ **Corporation tax advantages and tax reductions:** Again, this is similar to tax holidays whereby a reduced level of taxation is given for a specified period following project completion.

Private sector stakeholders that can be involved in PPP

The most common partners in PPP projects can be identified under the following main headings:

- ❖ **Public authorities:** These can act as project promoters, regulatory bodies and, providers of financing facilities. In general there are several levels of public authorities, namely; regional and local, state governments and national administrations. Public authorities are primarily interested in the cost-effective development of infrastructure and transport services and, in optimising long-term external effects in terms of economic and social development, land-use, and impact on the environment, etc.
- ❖ **Private companies in the construction sector:** This generally comprises large building companies, engineering groups, designers, etc., with their main interest generally being in the carrying out of studies, design and construction work both commercially and for profit. Traditionally their main interest will be devoted to the construction phase of a project, but, in some cases they may be interested in acting as a project leader, or taking part in a concessionary agreement as a part of a concessionaire group.
- ❖ **Established infrastructure operators:** This group would be made up of existing concessionaires and could comprise those currently operating toll road facilities, railway companies, airport operators and port operators. Their interest in a given project would usually be directed towards the development of their own activities by applying their skills in relation to the extension and modernisation of their own infrastructure or by involvement in external developments having a direct contribution to their primary interest.
- ❖ **Operators of transport services:** Whilst it is currently rare to find transport operators involved in road projects, it is not unusual to find railway and port companies/authorities are found to be involved in PPP projects both as infrastructure providers, users and operators. The primary objective of a transport operator involvement in PSP/PPP is to make the best possible use of the new infrastructure for the development of their own transport activities.

- ❖ **Commercial banks and other private investors:** These always tend to be important partners in any PPP project. Banks will usually act as advisors during the project development phase. The final objective of the private investor/bank is to maximise their returns on an investment in a given project. Banks are also motivated to become involved in such projects because the investment is generally large and as such offers advantageous lending opportunities under established terms and relatively low risk conditions.
- ❖ **International financing institutions:** This covers such institutions as, for example; the World Bank, the Asian Development Bank, etc. These institutions basically play the same role as large commercial banks but have an international structure and are involved in activities worldwide.
- ❖ **Other industrial sectors:** Other large companies in the industrial sector may also have an interest in PPP, for example, railway rolling stock providers, the steel industry, vehicle manufacturers, road plant suppliers etc., but their involvement may well tend to be less direct and less substantial than any of the other groups mentioned above.

Summary

The concept of PSP under an umbrella of PPP is a complex issue. This report identifies the 'building blocks' required in the establishment of a roads agency within a framework of PPP. It also identifies both the types of PSP that are currently in existence within PWD and also those which might be envisaged if full commercialisation and/or privatisation of projects is to be contemplated. With any form of PSP it is essential that a partnership between the public and private sector be established and the risks associated with such be assumed by the party who can best control, manage, 'carry', insure against and sustain the consequences of, risk.

In terms of the 'building blocks' positive steps have already been taken in achieving the objective of privatisation and outsourcing, most importantly, the establishment of the UP State Highways Authority which has this objective in mind. Nevertheless, there remains much to do if the Authority is to function as the Agency to promote such development. As such, the development of the UP State Highways Authority [UPSHA]. The salient points in regard to PSP in public private partnership can therefore be identified and summarised as follows;

- ❖ PSP in PPP provides the means to enlarge traditional ways of financing transport infrastructure in a more efficient way.
- ❖ The early involvement of the private sector in the life cycle of a project can be advantageous.
- ❖ Whilst it is necessary to provide clear definitions of the aims, objectives and what is required in terms of a project, some flexibility should be included to allow for private sector input, for example, in design, in order to attain additional benefit from private sector skills.
- ❖ Project justification should be viewed in terms of both, the socio-economic benefits to the community [public sector requirement] and financial justification and the return on capital invested [private sector requirement].
- ❖ The creation of specific companies for PSP in PPP can provide for greater efficiency when full managerial and financial autonomy, with responsibility and accountability for the technical, economic and commercial success of the project, rests with an individual company.
- ❖ PSP in PPP has generally been proven to be appropriate for a wide range of transport infrastructure projects from small to large and all projects can involve PSP to a greater or lesser extent.
- ❖ The engaging of the private sector in PPP for transport projects allows scarce financial public sector resources to be reallocated to other public sector projects.
- ❖ The engaging of PSP in PPP requires political commitment to project implementation.

- ❖ Both the regulatory and legal environment is a key element in PSP. Uncertainties in these areas will lead initially to increases in project costs and ultimately the unwillingness for the private sector to participate.
- ❖ Encumbrances, and the clearance thereof, should be the responsibility of the public sector in order that such issues can be resolved/removed prior to any contractual arrangement with the private sector. Furthermore, the public sector are the owners of the asset along which; land acquisition, moving of utilities, encroachment, tree cutting etc., may be required and, as such, are probably best placed to resolve such issues.
- ❖ Financial instruments may be required to enhance the attractiveness of a project for the private sector. The necessary regulatory framework and instruments should be in place in order that these can be used in such cases.

4.3 A CONCESSION AGREEMENT

A Model Concession Agreement (MCA) for the development of National Highways on a BOT basis² was developed between late 2001's and early 2011, with two types of agreement currently available to NHAI for BOT projects above and below INR 100 Crores. The following presents the key features of such BOT contracts.

The MCA is a comprehensive legal document between various key stakeholders and establishes the relationships between these various stakeholders and the specific agreements / contracts for the distribution of the project risks that have been identified and can be allocated. The MCA identifies and defines the five project phases and the roles and responsibilities of the key stakeholders as follows;

- ❖ **Bidding phase:** The entire period up to the signing of the concession agreement.
- ❖ **Development phase:** The period from the signing of the concession agreement up to the start of construction as identified by the realization of the project funding and achievement of financial closure. The key roles and responsibilities of both the concessionaire and the Agency are driven by the achievement of Conditions Preceding Financial Closure. This includes activities and 'milestones', such as the handing over of the site to the concessionaire; the receipt of all clearances; the freezing of design and other project parameters such as project cost, tolling strategy, concluding construction and financing arrangements etc. Based on the past experiences the fulfilling of these responsibilities is crucial for the success of the project.
- ❖ **Construction phase:** Runs from an appointed date up to the date of commencement of commercial operation. Once the key requirements have been laid out in the development phase and have been completed, the developer becomes fully responsible for construction and the obtaining of all clearances permits and certificates for completing the project and the subsequent opening for commercial operations.
- ❖ **Operational phase:** Commencing at start of commercial operations this period runs until the termination of the concession or operation of the facility. The longest period of the concession, the developer has the right and the obligation to operate and maintain the highway as per the standards laid down, collect the tolls to repay the debt and, earn a return on the equity investment.
- ❖ **Divestment phase / defects liability period:** Starts from scheduled termination date and ends on the issuance of a Vesting Certificate. In this period the concessionaire makes preparations to hand back the project to the Agency after carrying out repairs and renewal to comply with any divestment requirements.

² Examples of these are currently available on NHAI web site - WWW.NHAI.ORG/CONCESSIONAGREEMENT.HTM - and could probably be adopted/modified for use in UP

The MCA is organized into the following Chapters with Articles, Technical and Non-Technical Schedules as follows;

Item	Description
<i>Articles 1 & 2</i>	Definitions and Scope of Project
<i>Articles 3 to 5</i>	The Grant of Concession and the detailing of the conditions Precedent to Financial Closure.
<i>Articles 6 to 8</i>	Any provisions on Fees, competition and the augmenting of capacity
<i>Articles 9 & 11</i>	Obligations and warranties of the Concessionaire
<i>Articles 10 & 12</i>	Obligations and warranties of the Agency
<i>Articles 13 to 17</i>	These deal with the construction and completion of the project
<i>Articles 18 to 19</i>	Operations and maintenance
<i>Article 20</i>	The appointment and role of an independent consultant
<i>Article 21</i>	Traffic sampling
<i>Articles 22 to 28</i>	The details of the financing arrangements and the roles and responsibilities of the Concessionaire and the Agency, including any provisions relating to the provision of security to lenders
<i>Article 29</i>	Provisions relating to Force Majeure and payments for termination under such
<i>Articles 30 to 32</i>	Provisions and payments for suspension and termination and, the events covering default by the Concessionaire and the Agency
<i>Article 33 to 34</i>	Divestment and defects liability requirements
<i>Articles 35 to 44</i>	Miscellaneous provisions such as assignment and charges, indemnity, change in law, dispute resolution etc
<i>Schedule A to D</i>	Project site facilities and scope
<i>Schedule D to F</i>	Standards and specifications, permits and performance
<i>Schedule G</i>	Schedule of user fees
<i>Schedule H</i>	Project Completion Schedule
<i>Schedule I to J</i>	Drawings and tests
<i>Schedule K</i>	Format for the completion certificate
<i>Schedule L</i>	O&M requirements
<i>Schedule M</i>	Monthly Fees collection statement
<i>Schedule N to O</i>	IC and terms of reference
<i>Schedule P</i>	Provisions for traffic sampling
<i>Schedule Q</i>	Draft escrow agreement between concessionaire, lenders and Agency
<i>Schedule R</i>	Draft State support agreement to be entered into between concessionaire, the Agency and the State Gov't
<i>Schedule S</i>	Safety requirements
<i>Schedule T</i>	Criteria for statutory audit
<i>Schedule U</i>	Draft substitution agreement between concessionaire, lenders and the Agency
<i>Schedule V</i>	Format for the vesting certificate
<i>Schedule W</i>	PCU factors
<i>Schedule X</i>	Reporting and records requirements

In addition to the above, the NHAI web site also offers a model Annuity based concession agreement which again could also be adopted/amended/modified for use in UP if this 'vehicle' were to be used for infrastructure development within the State, using PSP. Other model agreements for other potential PSP 'vehicles', such as SPV etc., would, however, require to be developed although, in the case of an SPV model this may be available from the UP State Bridge Corporation.

4.4 TRAINING

In the above commentary firstly, the major roles of the road agency have been identified as this relates to PSP and, secondly, in the case of UP, the State Highways Authority of UP [UPSHA] has been identified as the body to develop this initiative. At present, however, of the original 'start up' staffing level identified for UPSHA, only a skeleton staff is currently stationed at their offices, as identified.

The key to the establishment of an operational UPSHA will be the;

- 1) assignment of all members of the board and the assignment of the Chairperson;
- 2) development of a mandate, mission statement and clear definition of both the objectives and the scope of work of the authority
- 3) Identification of staffing requirements for both the short and medium term, with a recruitment strategy and plan.

Along with the assignment of staff to the Authority, it will also be necessary to develop an action plan for training as well any required training programmes.

An orientation training programme should be the first to be developed for all newly inducted personnel to the Authority. This should expose the individual to the units/sections within the Authority and the personnel within each unit/section. In addition this should also cover the routine functions, policies and procedures of the organisation and how these relate to rules and regulations, codes of conduct, reporting, utilisation of internal resources and authorisation requirements.

In addition, and in the case of professional engineers, an orientation programme will also need to be developed that provides exposure to the methods adopted by the Authority in relation to how it plans, designs, constructs, maintains and operates roads under its jurisdiction. For specialised professionals/technicians, other than engineers, any orientation programme developed should be tailored to the specific needs, given that this group will have specialities in; planning, finance, human resource development, social and environment, IT, contracts etc.

At present it is foreseen that two modules will probably need to be developed namely;

Module 1: Common for all new personnel, this would be designed to cover the Authorities mission, goals, Acts of establishment, rules and regulations, types of projects and, personnel matters.

Module 2: For technical personnel this should be designed to cover policy direction, status, efficiency in implementation, funds requirements and resources, land acquisition, R&R, project and contract management, environment and social issues, highway construction, operation and maintenance and, quality assurance.

For financial personnel, the programme should specifically cover accounting practices and procedures as used within the Authority, financial management and financial management systems and, contract management.

A programme may also be considered necessary to cover the use of computers, related hardware and, software such as MS Excel, Word, Access, Power Point; the handling of e-mails and any other specialised software already implemented within the Authority.

The above will form the basis of the orientation programmes that will be required to be developed in addition to which, and probably at a later date, other training programmes might be considered, both domestically and overseas, which are more specialised in nature and relate to enhancement of knowledge in particular areas. This will require that a HRMIS be in place in which data on the educational background and training undertaken by all personnel can be made available and reviewed in order that future potential training programmes can be considered.

3. The Status to Date and the Way Forward

5.1 IMPLEMENTATION OF MEDIUM TERM 'PSP' ROAD PROJECT PLANS

The issue: Enhance GoUP facilitation of Private Sector Participation [PSP] in road development

The Uttar Pradesh State Highways Authority [UPSHA] was established in August 2014 under Act N^o 1228(2)/VII-V-1-1(ka)17-2014. This is a corporate body over which there is a Governing Council who are responsible for all policy decisions relating to UPSHA. The Governing Council is chaired by the Chief Minister with the Minister of Public Works Department acting as Vice Chairperson.

The mandate of UPSHA is to implement State Highway Projects using a commercial format. As such, and bearing in mind the project requirement to develop; “..... roads PSP (Private Sector Participation) ... capabilities in PWD, in partnership with external expertise...” and “.... implementation of medium-term PSP roads project plan”, it is to be noted that it was agreed³ that the UPSHA would be assigned as the vehicle [cell] to be used for PSP, privatisation and outsourcing.

UPSHA has an established office on the 4th Floor of the Mandi Bhawan building, Lucknow, with an office area of some 2,400 sq ft., and is fitted out to accommodate some 30 personnel. Whilst the Act allows for an original staffing of 14 personnel, at the time of publication of Report the staffing of the authority comprised only six persons, of whom it is currently understood that some may now have retired or been replaced.

In addition in Report, an initial series of some eleven Actions/Tasks were identified as necessary in order that the Authority could operate as a functional unit.

Further to the above, it is also to be noted that, nine State Highways, totalling some 1,250 kilometres, and ten four lane ROB's were given to SHA in order to pursue PSP. In the case of the ROB's, feasibility studies were undertaken by Feedback consultants, the results of which indicated that all ten projects exhibited an FIRR in excess of 20%. It is understood that these ten ROB's have been passed to the UP State Bridge Authority for implementation.

In the case of the nine state highways, it is also understood that SHA called for tenders for both feasibility studies and DPR's for five of the roads in question; evaluated the proposals; selected the consultants and forwarded the results of the selection process to PWD for agreement in order that contracts could be awarded. To date it is believed that there has been no further action and the proposals of the potential contractors will now have undoubtedly lapsed. The reason for the non-award of contracts is unclear.

This is the second report presented under the component of Private Sector Participation [PSP] and represents an outline of the PSP, the issues that the UPSHA require to consider and, in addition, the progress to date.

³ Institutional Development & Strengthening Action Plan - Aide Memoire, World Bank: Mid-Term Review Mission 3rd to 13th, April 2016

In February 2017, various *Focus Groups* were established by the IDS cell of PWD and on Thursday 5th April 2017, the first meeting of *Focus Group C, Private Sector Strengthening*, was convened.

The Focus Group has been established primarily for the implementation of PSP. The purpose of this first meeting, however, was to review the content of Report. This review was designed to identify areas of concern, and thereafter attain agreement and the endorsement of PWD as to the content, recommendations and actions contained therein. Prior to the meeting, the focus group had met privately to discuss the reports following which they prepared a list of comments which they tabled at the meeting as shown below;

1	Identification of roads for PSP [<i>should be</i>] based on: <ul style="list-style-type: none"> • Traffic Intensity • Religious importance • Traffic projections for 10 years, 15 years and 20 years.
2	Upgradation of Major District Roads to State Highways having high traffic intensity or any other importance like religious.
3	Resurvey of roads for identification of core network.
4	Prospect of annuity projects to be explored.
5	Formulation of Toll Policy to attract Public Private Partnerships [<i>Private Sector Participation</i>].
6	Infrastructure Development Act to be formulated in line with other States, like Gujarat and Punjab.
7	Develop model Concessionaire Agreement and include public utility facilities.
8	Adoption of NH Act 1988 in the State for LA and protecting unauthorised encroachment on the Right of Way
9	Indian Roads Congress has finalised a model for two laning of State Highways
10	Formulation of State Policy for Resettlement and Rehabilitation for Project Affected Peoples.
11	Either strengthen and equip UP State Highways Authority or create cell in PWD under Chief Engineer.

5.2 DISCUSSIONS IN PWD

In the following commentary a summary is given as to the review of the comments and the discussions in PWD.

a) TOR

Upon further review of the TOR it has been concluded that rather than combine both these reports it is probably preferable to retain the publication of two separate reports. As such, Report would now be published in May 2020 and would present a final review of the implementation progress towards the end of the TA. Report, therefore, looks at progress to date and identifies the immediate short term actions required to be ‘followed up’ by the Focus Group. Clearly at this stage it is not possible to identify all the actions required as this may, and possibly will, change over time.

b) Foreword

It was also agreed that a ‘Foreword’ should be added in which the details of item[a] above, be explained. In addition it was also stated by the Focus Group that whilst the undertakings in the report, concerning the establishment of a functioning UPSHA, were agreed, they were of the opinion that GoUP needed to reinforce the Act of establishment through a policy statement which would also include a statement as to the role, objectives and goals of UPSHA. Until such statements had been issued it was considered premature to act upon the ‘Actions’ as detailed in Report.

c) Identification of roads for PSP [should be] based on: traffic intensity; religious importance and, traffic projections for 10 years, 15 years and 20 years.

Factors such as, religious importance, economic and tourist importance might well be used as base criteria for the selection of projects for PSP. However, it is clear that the most important criteria in the selection process will be traffic and traffic volume over a selected time horizon. Based on such traffic projections a financial analysis will be required to assess the financial viability of the project and, therefore, its 'attractiveness' to potential private sector investors. Low or non-financial viability may not necessarily preclude a project from PSP as various forms of concession agreement are available which can take account of such possibilities, for example, viability gap funding.

Nevertheless, the first step is the identification of potential projects. In this regard it is agreed that projects should be based on the suggested criteria but that the proposed *PWD Policy & Planning Unit* be the body which examines existing and future funds availability and, following an analysis of the network, identifies potential projects based on forecast traffic volumes. A feasibility study should then be carried out to review a projects economic and financial viability. Only then, and following discussions with the body designated to undertake such, should and road project be assigned to the PSP body for implementation.

It is recommended that the Focus Group examine, "Suggestions on establishing 'PWD' lead unit for projects policy and planning" which will provide an insight as to the functions and objectives of the Policy & Planning Unit recommended for establishment within PWD. Reference should also be made to:

- ❖ "Implementation of core roads – strategic planning functions and processes in PWD"

d) Up gradation of Major District Roads to State Highways having high traffic intensity or any other importance like religious.

This requires that traffic and other link data be available. The Policy and Planning Unit of PWD should be the 'keeper' of such information and undertake such analyses that would identify those roads that should be upgraded. Reference should also be made to:

- ❖ "Suggestions on establishing 'PWD' lead unit for projects policy and planning"
- ❖ "Report on implementation of core roads – strategic planning functions and processes in PWD"
- ❖ "Report to re-establish annual road and bridge condition and traffic surveys for core network"

e) Resurvey of roads for identification of core network.

It is agreed that this is a very important requirement for the review of all types of works to be carried out on the network, and not necessarily solely for PSP purposes. Such surveys are required to be carried out annually and in some cases bi-annually, if an inventory of condition, traffic and inventory data is to be available and a current database for the network maintained. The undertaking of such should be directed by the Policy & Planning Unit of PWD who should also be the 'keepers' of the data.

It is recommended that the Focus Group examine, "Report to re-establish annual road and bridge condition and traffic surveys for core network" which will provide an insight as to the proposed functionalities to be re-established within PWD. Reference should also be made to:

- ❖ Suggestions on establishing 'PWD' lead unit for projects policy and planning
- ❖ Report on Establishing Road Maintenance Management System [RMMS] featuring rational prioritisation on techno-economic criteria, and apply to core network maintenance management

f) Prospect of annuity projects to be explored.

Whilst there are many types of concession agreements available to any potential PSP implementing agency, three of the most commonly used in India, which includes an annuity concession, have been examined in this report. It should be remembered that no single concession agreement type may be suitable for every potential project and the merits and drawbacks of each should be reviewed in the light of each potential project before selection of any one concession agreement type is made.

g) Formulation of Toll Policy to attract Public Private Partnerships [*Private Sector Participation*].

The challenge is to balance the interests of the users, private operators, the implementing agency and the government. Whilst protecting the interests of the users is crucial for the acceptance and implementation of any toll regime, it is also important that the toll rates make the concession a viable option for private entrepreneurs. The tolls to be ascribed to a project need to be reviewed for each individual project. The boundaries for tolls, with the policy underlying such, may need to be established as policy by Government. The policy for tolls and their boundaries should be reviewed by the Policy & Planning Unit on behalf of Government with inputs as necessary from the PSP implementing agency.

h) Infrastructure Development Act to be formulated in line with other States, like Gujarat and Punjab.

With respect to the two states identified the following is to be noted.

Gujarat : Gujarat was the first state in India to enact an Infrastructure Development Act. Under this Act, the Gujarat Infrastructure Development Board [GIDB] was established in 1995 to facilitate the flow of funds from the private sector into the development of public infrastructure whilst ensuring coordination between the various agencies. GIDB has also drafted regulatory framework for water supply and sanitation and has also drafted the Gujarat Infrastructure Development Act, 1999, popularly called 'BOOT Law' which offers several variations in the Build, Own, and Operate and Transfer policy.

As per the needs based plan, the 'Gujarat Infrastructure Agenda Vision 2010', the GIDB has estimated an investment in 383 projects over the next 10 years totaling some INR.117,000 crores. This includes projects in the areas of road, rail, ports, power, industrial parks, urban development and gas, with almost 70 per cent of the investment funds being proposed to be derived from the private sector. The GIDB has also initiated a study to provide an 'Integrated Public Transit System (IPTS)' for Ahmedabad, the capital city of the State.

With the Chief Minister as its Chairman and the Industries Minister as Vice-Chairman, the GIDB has the power to make quick decisions on the acceptance of projects on a fast track basis. Its focus is on overall planning and the privatization of infrastructure projects; project preparation in the form of feasibility studies; undertakes framework studies; prepares model concession agreements, detailing risk allocation within public-private partnerships; arranges overseas competitive bidding; advises State government departments on project financing and engineering and coordinates between the various sector specific departments.

The BOOT Law provides the option for the developer to initiate an unsolicited proposal to Government. This then allows for either 'Limited Competitive Bidding' or, what is termed as the 'Challenge Route'. This means that the private sector can initiate a project to provide community benefit in response to market demand. The Government would then consider the merits of the project

and place such through the 'Challenge Route'. All projects initiated by Government or by the developer under Section 10, must go through the competitive bidding process. This therefore ensures transparency, low cost and potentially higher quality infrastructure, all to the benefit of the end-user.

In summary; the Gujarat Infrastructure Development Board (GIDB) is a statutory body set up under the Gujarat Infrastructure Development Act, 1999. This organization covers all areas of infrastructure development in Gujarat with its broad areas of work being defined as:

- ❖ Overall planning,
- ❖ co-ordination and monitoring'
- ❖ removal of policy impediments, and,
- ❖ Decision making.

The Board is headed by the Chief Minister of the state, to ensure that the board has the capacity to take policy level decisions. Most of the ministers connected with infrastructure and industrial development, plus the top officials of concerned departments are also represented on the Board. The board covers infrastructure development in the areas of; Ports, Power, Transportation (road, rail and airport), Urban infrastructure (water, wastewater, solid waste and transportation), Information Technology, Industrial parks, Gas industry, etc.

In all these areas, the principal objective of the GIDB is to develop projects on a commercial basis with the help of private sector participation.

Punjab : The Government of Punjab has been actively pursuing private sector investment in order to both create 'world-class' infrastructure and to upgrade the present infrastructure within the state. The initiatives undertaken by the Government in this regard include amongst other objectives:

- ❖ The establishment of the Punjab Infrastructure Development Board (PIDB) in 2017 as a part of the Punjab Infrastructure Development Act. This nodal agency was established to facilitate private investment in infrastructure across different sectors, namely: roads & highways, urban infrastructure, industrial infrastructure, electricity, health and education, etc.
- ❖ the creation of a US\$ 4.25 million fund called the Punjab Infrastructure Initiative Fund (PIIF) in order to finance project development through public private partnership
- ❖ The enacting of the Punjab Infrastructure Development Act in 1998 [amended in 2012] and the establishing of the Punjab Infrastructure Regulatory Authority (PIRA). The State Government also recognized that to attract private participation there was a need for: all-encompassing legislation to secure a 'level-playing field' for private stakeholders, the establishment of a transparent regulatory framework which should be governed by an autonomous regulator for the granting of various concessions and incentives in order projects and investment opportunities could be seen to be viable and attractive. The Act therefore provides the necessary legal and policy framework necessary to facilitate private investment in infrastructure projects

Given the vast funds requirement for infrastructure development, the State Government made the decision to encourage both the domestic and foreign private sector to supplement its efforts in developing the infrastructure facilities by participating in the financing and/or development, operation and management of required infrastructure within the State. To attract private participation, the State Government recognized the need to :

- ❖ ensure overriding legislation to secure an equal opportunity for private participants,
- ❖ establish a transparent regulatory framework governed by an autonomous regulator and,
- ❖ Grant both concessions and incentives to make the investment opportunities for infrastructure projects both viable and attractive.

- ❖ With this in mind a regulatory framework was established to provide clear guidelines for infrastructure development from conception to implementation, and therefore provide for the following:
 - ❖ the necessary decision making powers and processes, including that in respect to the selection of projects and concessionaires;
 - ❖ the legal basis for the grant of concessions to private parties;
 - ❖ the parameters and structure for Private Participation based on commercially accepted principles such as Build, Operate and Transfer (BOT); Build, Operate and Own (BOO); Build, Own, Operate and Transfer (BOOT);
 - ❖ the constitution and organization of a functionally and financially autonomous regulator whose objective would be to ensure that development activities are conducted in a fair and just manner whilst striking a balance between the inherently conflicting interests of the State, the concessionaire, and the public;
 - ❖ promotion and regulation of competition;
 - ❖ safeguarding of the rights and interests of the public to ensure that :
 - the concessionaire provides adequate service throughout the term of the concession,
 - the concessionaire observes relevant safety and environmental protection standards,
 - the charges levied on the user are reasonable,
 - the infrastructure is properly maintained throughout the concession, and,
 - ensure that if the infrastructure is to be transferred to the Government at the end of the concession period, the Government inherits an operational project and not a liability,
 - ❖ ensure a quality assurance mechanism plus,
 - ❖ A dispute resolution mechanism. In 2013, The Government of Punjab created Punjab Infrastructure Development Board through the enactment of the Punjab Infrastructure Development Bill, 2013. In 2015, in order to overcome shortcomings of the 2012 Act and initiate an overriding regulatory framework, the Punjab Infrastructure (Development & Regulation) Act, 2012 was enacted.

The above commentary therefore provides an insight into the development acts instituted in both Gujarat and Punjab. This needs to be reviewed by the Focus Group and, if considered appropriate then, representation should be made through the appropriate channels for the development of such. However, it is not a necessary prerequisite for the development of PSP.

i) Develop model Concessionaire Agreement and include public utility facilities.

As mentioned in this, Report, model concession agreements are currently available from the current leading Indian exploiter of such, namely the National Highways Authority of India [NHAI]. These have been tried and tested over a number of years and whilst they may have some inclusions that may not be appropriate for UP, these should be reviewed by the relevant body established to undertake PSP in the road sector and the agreement used as the basis for the development of any UP specific concession agreement. The appropriate agency for the development of such can only be the UP PSP implementing agency.

j) Adoption of NH Act 2015 in the State for LA and protecting unauthorised encroachment on the Right of Way.

This would require a policy decision by Government as at present the institutional arrangements adopted follow the LA Act of 2002. Whilst the impact of any changes in the policy for Land Acquisition would impact upon any PSP implementing agency projects, the change in policy for such cannot be the remit of the PSP agency but must remain that of Government. Reference should be made to:

- Suggestion for Implementing Environmental & Social Management [E&SM] Policy, Processes and Training

k) Indian Roads Congress has finalised a model for two laning of State Highways.

Whilst this would be of interest to a PSP implementing agency, it is not seen to be an essential requirement to the establishment of such an agency. It is suggested that this would probably be of more direct interest to PWD and it is that organisation which should obtain the model and review this in the light of the network that it administers. Policy with regard to any model to be adopted for two laneing, should come from PWD and be advised to the PSP implementing agency.

l) Formulation of State Policy for Resettlement and Rehabilitation for Project Affected Peoples.

Whilst this will have a bearing on the cost of a project, the formulation of State policy on such will be under the auspices of Government and an Environmental and Social Unit within PWD and not a similar unit within the PSP implementing agency. Such a unit in the PSP implementing agency will be required to monitor environmental and social safeguards, and not determine policy.

It is recommended that the Focus Group examine Report, “Suggestion for Implementing Environmental & Social Management [E&SM] Policy, Processes and Training” which will provide an insight as to the functions and objectives of the proposed Unit recommended for establishment within PWD.

m) Either strengthen and equip UP State Highways Authority or create cell in PWD under Chief Engineer.

At the first meeting of the Focus Group an uncertainty was expressed as to whether the UPSHA was the right vehicle for the development of PSP. This uncertainty was brought about by the restrictive title given to the Authority and the necessity for such a body to possibly be involved in PSP for all classifications of road. Furthermore, it was also noted that in the Government Road Development Policy of 2012 it is stated that;

“12.7UP State Bridge Corporation will be the nodal agency for construction of projects under the Build, Operate and Transfer system.”

Whilst this latter statement is of consequence it is not something that cannot be changed given that the Act of establishment for UPSHA does in fact establish that the State Highways Authority should be the agency for PSP as this relates to highways mandated to it.

Nevertheless, this uncertainty should also be viewed in the light of item above. As can be seen from the review of the two States identified, a separate agency has been established within these States to further PSP for infrastructure development over many sectors, including that of roads. These bodies, however, appear to be promoters and administrators of PSP policy, rather than monitors and implementers of projects. However, in the case of the State of Gujarat, not only is there a Gujarat

Infrastructure Development Board but there is also the Gujarat State Road Development Corporation Ltd [GSRDC].

The GSRDC is a body established by the Government of Gujarat ,through a Government Resolution dated February 2005 with the corporation being incorporated in May 1999 as a limited company under the Companies Act,1956. This State formed and wholly owned Government undertaking has been established to implement the plans laid down within the Gujarat Infrastructure Agenda – Vision 2012. The main objectives of the corporation are to;

- ❖ manage the development of bridges and roads
- ❖ raise financial resources from banks, financial institutions, mutual funds, individuals etc, where required.
- ❖ develop and exploit land along side roads/bridges on a commercial basis.
- ❖ undertake project preparation and planning, prepare feasibility studies, become a consultant or, appoint a consultant[s] for such requirements as environmental studies etc.

Thus in the case of UP the situation is not that different from that of Gujarat except that there is no promoter for PSP although there is, ostensibly, an implementer. The legal ramifications as to whether or not UPSHA, as an Authority rather than a Corporation, can operate over all aspects of PSP, including Special Purpose Vehicles, requires to be investigated by the Focus Group in order to ascertain as to whether or not the Authority requires to be changed into a limited company, similar to that of the UP State Bridge Corporation. In addition, the Focus Group will also need to examine the proposal of setting up a cell within PWD to deal with PSP, rather than using an external agency, and the legality of such. A decision as to the way forward should then be made and the case for this presented to the steering committee for endorsement.

Some eight days after the first meeting of the Focus Group, a further set of anonymous comments were given to the consultants, which may, or may not, reflect the views of the Focus Group. All comments are required to be given through the Focus Group and raised at their respective meeting with the consultant in order that they can be endorsed by them. However, the consultant has, in this instance, taken the time to address these additional comments.

5.3 IMPLEMENTATION STATUS, PROGRESS & THE WAY FORWARD

In terms of the understandings, agreements and resolutions, the progress and actions can be summarised as below;

Item	Action	Status/Progress
1	The IDS Cell should establish an internal focus group/committee to deal with the component of PSP.	Focus Group established February 2017
2	The focus group should officially make the first Report available to the UP State Highways Authority in order that they may review this.	The formulation of the Focus Group has in fact included as one of its members a representative from UPSHA. The Focus Group has reviewed Report and comments have been given at the first meeting on 5 th April 2017. These comments and observations have been addressed within this report
3	In conjunction with item, the focus group should also review this first report.	
4	A meeting(s) should then be organised at which the focus group, officers from UPSHA, and the consultants, should discuss the report and the major issues, recommendations and, actions to be taken.	
5	Report should review the comments of the Focus Group and identify progress	
6	Establish vehicle for implementation of medium term PSP roads project plan	<p>[a] GOUP has established the UP State Highways Authority for PSP, privatisation and outsourcing.</p> <p>[b] The UPSHA has been reviewed by the TA and comments, modifications and actions have been provided in Report for the functioning of the Authority.</p> <p>[c] Focus Group have questioned if the UPSHA is the right vehicle and that a Cell within PWD be established to implement PSP.</p> <p>[d] Given that UPSHA is recommended as the agency for implementing PSP, a time based Action Plan for the Actions to be undertaken in Report, including the equipping and manning of the agency, etc., should be prepared by the Focus Group.</p> <p>[e] Focus Group to prepare a proposed policy statement to present to the Steering Committee as to Government Policy with regard to PSP. This should include a review of funding requirements and funding gaps/shortfalls of PWD. Potentials for PSP can then be identified.</p>

Finally, in Annexure B, a presentation of the main points concerning the establishment of a functioning body for PSP is given.

5.4 Types of PSP in Public Private Partnerships.

BOT is used today to as a generic term to describe many variants of PPPs. Under the BOT option, the private partner builds a facility to the specifications agreed to by the public agency, operates the facility for a specified time period under a contract or franchise agreement with the agency, and then transfers the facility to the agency at the end of the specified period of time. In most cases, the private partner will also provide some, or all, of the financing for the facility, so the length of the contract or franchise must be sufficient to enable the private partner to realize a reasonable return on its investment through user charges. At the end of the franchise period, the public partner can; assume operating responsibility for the facility, contract the operations to the original franchise holder or, award a new contract or franchise to a new private partner. The BTO model is similar to the BOT model except that the transfer to the public owner takes place at the time that construction is completed, rather than at the end of the franchise period. Some of the more common PPP arrangements are as follows;

- ❖ **(BOOT) Build, Own, Operate, Transfer:** An agreement in which the private party takes on the building, including the financing, exploitation and maintenance of an infrastructural facility. The private party is permitted to earn back the investment cost and those costs in relation to the functioning and maintenance of the asset, including a reasonable profit, by imposing levies and fares on the users of the facility. When the facility is tested and meets the requirements, the facility is then transferred to the government.
- ❖ **(BTO) Build Transfer Operate or (BTL) Build, Transfer and Lease:** An agreement, in which private parties build and finance an infrastructural facility. The private party also takes on all costs, delays and implementation risks. When the facility is tested and meets requirements, the facility is transferred to government. Subsequently, the private party then operates the facility in name of the government for a certain amount of time during the lease-contract. The private party applies the contractual provisions, transfers it to the government and then leases the provision back from government.
- ❖ **(BOO) Build Own Operate:** An agreement in which the private party takes on the building, including the financing, operation and maintenance of an infrastructural facility. The private party is permitted to earn back the investment costs as well as those costs incurred in the functioning and maintenance by levying tolls/fares on the users of the facility. This will provide for reasonable profit. The private party will own the facility in perpetuity.
- ❖ **(DBO) Design Build Operate:** Agreement between the government and a private party, in which the design, building and exploitation of a project is transferred to the private party. Often this also includes the financing of the project.
- ❖ **(DBOM) Design Build Operate and Maintain:** A DBO contract in which the private party also takes on the full provision of services for the infrastructure concerned.
- ❖ **(DBFO) Design Build Finance Operate:** A DBO contract in which the private party also takes on the financing of the project.
- ❖ **(BOR) Build, Operate and Renewal of concession:** A combination of DBOM and DBFO contract. The private party undertakes the financing, building and all costs relating to both the running and maintenance of the project. The private party is permitted to levy appropriate tolls for the use of the infrastructure for an agreed period of time. The private party therefore attempts to collect revenue to cover the cost of the investment, finance maintenance and achieve an acceptable level of profit. At the end of the concession period the private party is permitted to negotiate again for the renewal of the right to continue the concession for a further period.
- ❖ **(LDO) Lease Develop Operate:** An agreement between the government and a private party, in which the private party leases the right to control a facility (and the right to generate revenues for lending a certain service), for a certain period of time. The government continues to be the owner of the facility. The difference with a concession is that the private party is not obliged to invest in the

facility. The private party is leasing an existing government provision for exploitation in the long run.

- ❖ **(ROT) Rehabilitate, Operate and Transfer:** An agreement between the government and the private sector, in which the existing infrastructural facility is transferred to the private sector. The private sector rehabilitates, operates and maintains the facility for a certain period. At the end of this period the facility is transferred back to government or another private party selected during the public offer.
- ❖ **(RFOT) Rehabilitate, Finance, Operate, Transfer:** A ROT contract with the addition that the private party takes on the financing.
- ❖ **(ROO) Rehabilitate, Own and Operate:** An agreement between government and a private party in which the private party may recover its costs, run and maintain the facility for an indefinite period of time. As long as the private party does not violate the contract, the private party in principle can run the facility indefinitely.
- ❖ **DEE, EE, and E:** E (Execution), EE (Engineering and Execution) and DEE (Design, Engineering and Execution) contracts are for design and construct. Engineering means draw up a project-plan for the translation of design to working methods, implementation plan, timetable, etc.
- ❖ **Temporary Privatization:** Existing facility is transferred to the private sector for a period of time. Private sector renovates and operates the facility during this period.
- ❖ **Design & Build:** In these kinds of contract the government puts the design and realization of a facility to one private party. The duration of the contract equals the required time for the design and building of the facility. The relation between the principal and agent is comparable with a relation between a supplier and a buyer.

