



UNIVERSIDAD POLITÉCNICA DE MADRID



TRANSPORT RESEARCH CENTER

# **EXECUTIVE REPORT:**

## **ANALYSIS OF THE JAPANESE TOLL EXPRESSWAY SYSTEM IN THE FRAMEWORK OF THE CURRENT TREND OF THE TOLL ROAD BUSINESS IN THE WORLD**

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## **1. INTRODUCTION**

The Japanese Expressway Holding and Debt Repayment Agency of Japan (JEHDRA) invited Professor Jose M. Vassallo from the Transport Research Centre of the Universidad Politécnica de Madrid to visit Japan between September 28<sup>th</sup> and October 5<sup>th</sup> 2008. The main goals of his visit were:

- To give two lectures, one in Tokyo and the other in Osaka, to JEHDRA officials and personnel from the Japanese Expressway Companies, about the current trends of the toll road business in the world.
- To discuss with executives of JEHDRA the current organization and management of toll expressways in Japan.
- To meet with the six private companies in charge of managing and operating the toll highway network in Japan (East NEXCO, West NEXCO, Metropolitan Expressway Company Ltd., Hanshin Expressway Company Ltd., and Honshu-Shikoku Expressway Company Ltd.).
- To write a final report including observations on the present situation of toll expressway management and financing in Japan.

This report fulfils the last requirement required by JEHDRA from Professor Vassallo.

## **2. OBJECTIVES OF THE REPORT**

The objectives of this report are the following:

- Analyze the toll expressway system in Japan, paying special attention to the privatization process that took place a few years ago.
- Provide an overview of the current trend of the toll road business in the world, particularly regarding the participation of private companies in designing, building, funding, maintaining, and operating toll highways.
- Give some advice about the future challenges regarding the organization of the toll expressway business in Japan.

The sections of this report follow the objectives outlined above. First, I start with a description of the Japanese toll highway system. Second, I outline the current trends in the toll road business in the world. Third, I report the results of an analysis of some strengths and weaknesses of the Japanese system where I identify recommendations for the future. Finally, I end with an overall conclusion.

### **3. THE JAPANESE TOLL EXPRESSWAY SYSTEM**

In this section I summarize the evolution of the toll expressway system in Japan. First, I give a brief history of the road development in Japan. And second, I make an analysis of the privatization process.

#### **3.1 BRIEF HISTORY**

The first seven arterial roads in Japan (Shichidoekiro) were built in and after the end of the 7<sup>th</sup> century connecting the capital and the outlying regions. At the end of the 12<sup>th</sup> Century, a radial road network called Kamakura Kaido was constructed around Kamakura City, which was the first samurai fiefdom. In the 17<sup>th</sup> Century under the Edo regime of Tokugawa, some roads were improved and organized into five arterial roads connecting Edo and other regions.

In the 19<sup>th</sup> Century modernization started in Japan when it opened its ports to foreign trade. During the Meiji era (1868-1912) most of the budgetary funds were allocated to finance the railways. In 1923, the Great Kanto Earthquake hit and destroyed Tokyo. The restoration plan pushed by the government of the time left little resources available for funding new roads. Thus, the road network condition was still poor when the Second World War started. In 1945, right after the Second World War, the road network condition in Japan was in an even worse state.

In the aftermath of the Second World War, Japan had to tackle the reconstruction and improvement of its road network intending to foster industrialization mostly around heavy industries. In 1953, a special fund for financing roads was established. Since then, fuel taxes and other vehicle-related taxes have been earmarked for road works. This fund was designed at the national and local level. The national fund is financed by resources from gasoline tax, liquefied petroleum gas tax, and motor vehicle tonnage tax. The local funds are financed from taxes transferred from the central government (local road transfer tax, motor vehicle tonnage transfer tax, and so on), and from other local taxes—mainly light oil delivery tax, and automobile acquisition tax.

In 1956, the Law Concerning Special Measures for Highway Construction was enacted. This Law marked the establishment of the Japanese toll road system originally devised to accelerate the construction of expressways by borrowing funds to be repaid with the tolls collected from the users of the completed roads. Since then, several companies were established as public entities for the construction and management of toll roads; in 1956, the Japan Highway Public Corporation; in 1959, the Metropolitan Expressway Public Corporation; in 1962, the Hanshin Expressway Public Corporation; and, in 1970, the Honshu Shikoku Bridge Authority. Those companies were allowed to obtain funding from the public sector through the Fiscal Investment Financing Plan to fund their new undertakings.

The tolls were established by the government depending on the needs to repay the debt issued. This debt was mainly allocated for the construction of new roads and the maintenance and operation of the existing roads.

### **3.2 THE PRIVATIZATION PROCESS**

In 2005, the four highway corporations in Japan were privatized. Six new commercial companies were established as a consequence of the privatization: East NEXCO, Central NEXCO, West NEXCO, Metropolitan Expressway Company Ltd., Hanshin Expressway Company Ltd., and Honshu-Shikoku Expressway Company Ltd. In addition, the Japanese Expressway Holding and Debt Repayment Agency (JEHDRA) was established as an independent administrative agency owned by the Japanese government.

JEHDRA was established to fulfil three goals:

- To ensure that the repayment of the debt incurred for financing the Japanese expressways was done within 45 years from 2005. The debt includes both the debt of the former public corporations and the debt necessary to undertake new projects during this period.
- To grant adequate levels of safety and quality of service on the highways.
- To disclose the relevant information in order to enhance transparency in the accountability of business.

JEHDRA became the owner of the toll expressways already constructed. The new assets constructed by each company are to be transferred to JEHDRA after the completion of the construction, and, at the same time, the debt borne by the companies shall be accepted by JEHDRA. At this time, JEHDRA, which holds the expressway assets, leases them to the private companies. The companies pay JEHDRA the lease fees according to the terms and conditions established in the agreement. These lease fees basically come from the tolls received minus the expressway maintenance and management costs. Consequently, the lease fees that the companies pay to JEHDRA are variable depending on the level of traffic. The revenue risk is hence transferred from the companies to JEHDRA and ultimately to the Japanese government which is JEHDRA's owner. Apart from the traffic risk, JEHDRA holds the interest rate risk when the interest rate of the loans is variable.

JEHDRA sets up agreements with each of the private companies establishing business plans, lease fees and a debt repayment plan. These agreements require the approval of the Minister of Land Infrastructure and Transport. When repayment of the debt is made in full, the expressway will be transferred to the road administration, and the tolls are expected to be removed.

The companies have scarce room to make profits since basically all the revenues obtained from tolls are set first to cover the maintenance and operation costs and second to pay JEHDRA the lease fee. The only room the companies have to make profits is by running other businesses related to the expressway operation (service areas, restaurants and so on) but in fact this is just a small part of the whole activity of the expressway companies.

JEHDRA is able to obtain funding at low cost — annual interest rates between 1.4% and 2.7%. Two reasons explain this fact. The first one is the stability of the toll revenues since most of them come from expressways with a long track record of operation. The second reason is that JEHDRA is a public entity owned by the Japanese government. In fact, part of the debt issued is guaranteed by the Japanese government itself: the so called government guaranteed bonds. JEHDRA has to repay also bonds which are not guaranteed by the government, called FILP bonds, which have a slightly higher cost than the government guarantee bonds.

Furthermore, with the approval of the Japanese government, JEHDRA can also provide companies interest-free loans, which are funded with subsidies granted by the national government. In addition, JEHDRA can provide subsidies for the construction, maintenance and operation costs of the expressways.

#### **4. THE CURRENT TREND OF THE TOLL ROAD BUSINESS IN THE WORLD**

Tolls or other kinds of user charges to fund roads have been implemented all around the world throughout the ages. In ancient Rome, for instance, some types of user charges were introduced to fund the construction and maintenance of the roads. They included gate tolls for entering cities, crossing bridges, getting through mountain passes, and so on. Along with those tolls, some earmarked taxes were also implemented in Rome to the vehicles in compensation for the dust raised by carts or the affected pastureland.

In the last few years, the construction, maintenance and operation of roads have been mostly funded through three different means: general budgetary resources, earmarked taxes allocated for special infrastructure funds, and in some cases, tolls collected from road users.

Most of the tolls implemented in many countries were not initially associated with the private operation of roads through concession contracts. Rather, tolls were used by the governments either as a means of funding the maintenance and operation of the highway network, or as a means of repaying the debt issued by the government itself to fund the road construction investments.

However, some countries—France, Italy and especially Spain—linked the implementation of tolls to the private management of the whole project cycle, from the conception of the project up to the funding and operation of the road by applying the concession approach. This trend has been progressively adopted by other countries such as the United Kingdom, some Latin American countries (especially Mexico, Chile and Colombia), and more recently the United States and the Eastern European countries. In the next section, I address the different trends in the implementation of concessions and PPPs in the world.

#### **4.1 PRIVATIZATION OF NETWORKS IN FRANCE, ITALY AND JAPAN**

France, Italy and Japan have in common that they have traditionally implemented tolls as a means of funding large scale highway networks in their countries, which have been mostly managed until recent times by large public-private or completely public companies (government-owned companies). These companies have been traditionally subject to strict government control in decisions related to the ownership of the companies, the toll levels to be set, the possibility of cross-subsidizing different projects and so on. However, in the last decade, these countries have started a privatization process intended to gain efficiency.

Toll highways in France began to be developed in 1955. Between 1955 and 1963 several public-private companies were created. The shareholders of those companies were mostly local governments, chambers of commerce and main cities. Unlike concession contracts in Spain, the concessions in France were not awarded competitively, which brought about less efficiency than in Spain.

In 1969 France established four new companies completely private, but three of them ultimately became public companies because of financial problems. The only private company that survived was COFIROUTE. The French Government created the public agency called *Autoroutes de France*, whose main objective was to balance the financial accounts of the different companies through cross funding.

The lack of efficiency in the management of the highways along with the pressure imposed by the European Union to introduce competition in the provision of infrastructure led France to initiate a process intended to privatize the three companies that previously belonged to *Autoroutes de France*: (ASF, APRR and SANEF). These companies were already owned by purely private operators.

Italy was the first country to implement toll highways in Europe. The first one, the Milan – Los Lagos highway was launched in 1924. Like France, most of the toll highways in Italy were managed by public companies. Since 1961, the Italian government entrusted the public company *Autostrade* to manage a large part of the toll highway network in Italy. The fact that *Autostrade* was a big company,

with both profitable and less profitable highway sections, enabled *Autostrade* to implicitly cross subsidize different sections.

Like France, Italy has recently conducted an in-depth reform to achieve efficiency through a greater participation of the private companies in managing toll highways. Some shares of *Autostrade* were first publicly sold in 1987, and then in 1999 the company was fully privatized. Moreover, ANAS, which used to be a governmental entity, became a public company—managed on the basis of commercial rules—in charge of granting highway concessions. The tolls were set up in the contracts of ANAS with the concessionaires although a formula was introduced to update the tolls over the years.

As already mentioned, Japan recently carried out a privatization programme of its expressway network that were managed by four public companies since 1950. In 2005 six private expressway companies were established, which would lease assets from the newly created Japan Expressway Holding and Debt Repayment Agency (JEHDRA), an incorporated administrative agency of the Japanese government. This privatization process seems to be only a first step since most of the shares of the new companies are still owned by the government and public sector companies.

## **4.2 THE CONCESSION APPROACH IN SPAIN AND LATIN AMERICA**

The concession approach in Spain is very important for several reasons. First, it is the first purely private approach to fund and operate highways in the world. Second, it has had a great influence in the concession mechanisms that have been implemented in Latin-America and more recently in North America. And third, Spain has developed the most active industry of transport concession companies in the world.

Below, I point out the main distinctive features that characterize the Spanish concessions system:

- A strict separation between the role of the government and the role of the private concessionaire is established. The government has the role of procuring the concession, establishing the contract terms and conditions to regulate the concession, and monitoring the fulfilment of the terms of the contract. Concessionaires, on the other hand, have total freedom to design, build, fund and operate the concession within the framework defined by the government in the concession contract.
- A fierce competition is promoted in the procurement process in order to award the concession. The Spanish model establishes competition in the tender as the key to force companies to be more innovative and efficient. This is maybe the reason why Spanish companies are currently so strong in the infrastructure market around the world.

- Unlike many countries in the world, the tender is not based on negotiations between the government and few preferred bidders selected in a prequalification process, but rather on the technical and economic offers submitted by the bidders. This process is cheaper, shorter, and more objective than the negotiated procedure though the contracts are not as complete as they are when a negotiated procedure is used.
- The bidders have to submit a financial plan in the tender, but they are not obliged to submit a definitive financial contract before the concession is awarded so the ultimate winner of the tender is allowed to close the financial contract after the concession is awarded. This fact substantially reduces the transaction costs for the bidders.
- Traffic risk is often fully transferred to the private sector. However, in recent years, concession contracts include mechanisms to share traffic risk between the government and the concessionaire.
- The role of the financial institutions, especially banks, is crucial in the concession contracts in Spain since they participate not only as lenders but also as shareholders of the concessions.

The Spanish approach has been successful in three ways. First, the strong competition has brought about important efficiency gains. Second, the simplicity of the tender has enabled the government to speed up the time necessary to have the highway available for the users. And third, a strong concession industry has been promoted. However, Spanish concessions have also experienced several problems. The main problem is perhaps the great number of renegotiations that eventually occurred because the aggressive forecasts of the winning bidder were not ultimately met. These renegotiations have created important extensions to concession contracts. This means that in the end the future users of the roads will hold the risks of these renegotiations.

Some of the features of the Spanish concession approach have been adopted by many countries, particularly Latin American countries such as Mexico, Argentina, Chile and Colombia. Broadly speaking, highway concessions in these countries fulfil almost all the distinctive features previously pointed out. However, each one of these countries has developed their particular characteristics, which in some cases have even been adopted by Spain afterwards.

### **4.3 SHADOW TOLL AND VALUE FOR MONEY IN THE UNITED KINGDOM**

The United Kingdom has been a very influential country in the last two decades in the development of Public Private Partnerships in the World. Like the Spanish concessions, the UK approach is based on a strict separation between the role of the government and the role of the private sector. However, unlike Spain and many other countries, the United Kingdom has not based its PPP approach on

charging a toll to the users but rather on paying to the private contractor from the budget either in terms of the usage of the road (shadow toll) or in terms of the quality of operation of the road (availability payment).

The main distinctive features of the British approach are:

- The revenues of the contractor do not come from the users but from the government's budget, and are paid on the basis of traffic (shadow toll) or performance-based standards (availability payment).
- The contracts are tendered competitively like in Spain, but they are awarded following a very different process. First a prequalification takes place intending to choose two preferred bidders, which subsequently have a long negotiation with the government about the characteristics of the potential contract. Once the negotiation with the preferred bidders has finished, the government decides the most convenient offer: best and final offer. This bidding process is longer and more expensive than the open bidding process used in Spain. The main advantage though is that the contracts resulting from this process are much more complete.
- Unlike Spain, traffic risk is not fully transferred to the contractor. When the shadow toll approach is used, a set of bands with shadow tolls varying with the annual traffic volume are established in order to smooth the profile of the revenue risk. When availability payment is used, the payment to the contractor does not depend on traffic but on some performance indicators fixed in the contract.
- Unlike the Spanish concession approach, the preferred bidders are obliged to present a financial plan before the contract is finally awarded. This becomes very expensive for the bidders.

The British approach has worked quite well. Compared to Spain, fewer renegotiations took place since the contracts were better defined and the financial close was reached before the contract was awarded. However, unlike Spain, transaction costs were much higher and the time from the conception of the project up to the definite award of the contract was much longer. Moreover, the procurement mechanism adopted is less objective and probably less competitive than the open procedure implemented in Spain. Another problem of the British mechanism is that, at the end of the day, the revenues still come from the budget.

#### **4.4 THE PRIVATIZATION OF PUBLIC ASSETS IN THE UNITED STATES**

The United States has a short tradition of implementing public-private-partnerships or concessions in the road sector. The reason that explains this fact is that, in 1956, a Federal Highway Trust Fund was created to fund roads in the United States. The revenues of the Federal Highway Trust Fund come from fuel taxes and other charges linked to the road sector that are earmarked to the Fund.

The Federal Highway Trust Fund is mostly aimed at funding roads, but it also funds public transport projects in the main metropolitan areas.

In spite of this, in the last few years, the Federal Highway Trust Fund is becoming unable to provide the necessary resources to maintain the network and build additional roads. The main reason for the lack of resources is threefold. First, the efficiency gains of the vehicles have reduced the oil consumption and hence the revenues coming from fuel taxes. Second, in recent years the Federal Highway Trust Fund has had a higher percentage of resources aimed at non-road activities. And third, the costs of construction, rehabilitation, and maintenance have increased faster than the rate of inflation.

This is why concession contracts have boomed in the last few years in the United States. Most of the concessions or PPP initiatives have been launched by the State Governments. Whereas the Federal Government is responsible for the global policy and providing funding for the roads, the State Governments are mostly responsible for the building of new highway projects.

The concession system in the United States and Canada has acquired some of the distinctive features of the Spanish concession system. However, unlike Spain and the United Kingdom, the main role of the government (in the case of the United States mostly local and State governments) has been to obtain as much money as possible upfront by leasing already constructed assets (*brownfield* projects) rather than seeking alternative means to circumvent budgetary constraints and increase efficiency.

The idea in the United States is hence to lease an already existing project to the private consortium that ultimately pays the largest amount of money upfront to be granted the concession. This way, the government obtains as much money as possible upfront to cover the government needs. Two examples of this kind of privatization are the Chicago Skyway Highway and the Indiana Toll Road Highway, which were leased to the private sector for a long period of time close to 100 years. The private consortiums made up of CINTRA and Macquarie paid the governments US\$1.839 billion and US\$3.850 billion respectively. This trend has been followed by many other States such as Colorado, Pennsylvania, Florida, Virginia and Oregon.

The way in which concession contracts have been awarded in the United States was strongly criticized by the Government Accountability Office of the Federal Government of the United States. They argued that the States and local governments, by wanting to obtain the largest amount of money upfront, did not look after the public interest in the concession contracts, which can end up harming the users.

## 4.5 FINAL REFLECTIONS

The ultimate objective of Public Private Partnerships in providing highways is to reach the highest efficiency for society. This efficiency means on the one hand to reach the best combination of cost and quality for the users, and on the other hand, to charge the users according to the social cost they produce. At the same time some issues such as regional and social equity should also be taken into consideration.

To reach this efficiency, it is crucial that the role of the public and private sector will be adequately defined from a twofold perspective: allocation of risk and incentives. However, reaching the optimum equilibrium is a difficult issue. If the government intends to control everything to safeguard the public interest, the private sector will have little room to develop its skills to optimize the process. However, if the government gives too much flexibility to the private sector in some issues, the public interest can be compromised in the end. The most effective approach is therefore the one that enables the government or the regulator to look after the public interest whilst at the same time gives enough flexibility to the private sector.

Along with efficiency, the government should also guarantee equity among users and regions. Users of the most congested expressways situated around metropolitan areas, who are wealthier than those in rural areas, should pay more. Moreover, the government should also allow cross subsidies among expressways situated in wealthy and poor areas. Contrary to what many people believe, it is not necessary to have a single company in order to implement cross subsidies.

Some countries, such as is the case of Chile, establish the same toll levels in all the highway concessions no matter what the profitability of the projects is. Then, the different concession projects are individually tendered. The concession projects in wealthy areas are willing to pay a certain amount to the government to be awarded the concessions, whilst the projects in poor areas need to request a subsidy to make the concession financially viable. Under this framework, the government designs the toll levels in order that the payments made by some projects offset the subsidies requested by other projects. Consequently, the concession system ends up becoming financially neutral for the government.

Regarding the right allocation of risks and incentives among the different stakeholders, there are some general rules. First, the risks should be managed by the stakeholder who is best able to control them in order to align risk allocation patterns and incentives. Second, the government should take on the risks that, being substantial for the economics of the concession, are unmanageable by the private sector. Third, the traffic risk should be shared between the government and the concessionaire since no stakeholder can actually control this risk. In this respect, an interesting approach, which has been recently implemented in some

concession projects, is the implementation of flexible-term contracts. Under this approach, if traffic is ultimately higher than expected the concession contract duration will be reduced whereas if traffic is lower than expected the concession duration will be extended.

In spite of the general rules described before, there is not a universal recipe since each country should carry out this allocation according to its tradition, legal system, characteristics of the industry, and so on. Until recently some approaches, such as those implemented in France, Italy and Japan involved excessive government participation in the sector. This has resulted in very little efficiency due to a lack of competition at the tender stage and absence of any incentives for companies to manage the infrastructure in such a way as to give the best service to the end users. On the other hand, some approaches, such as concession contracts in the United States, seem to have given too much flexibility to the private sector which can end up causing problems for the government to safeguard the public interest.

Two experiences that apparently are quite balanced are the concession contracts in Spain, and the DBFO contracts in the UK. However, these experiences still had some serious problems. In Spain there were many renegotiations caused by too aggressive offers at the bidding stage. And in the United Kingdom users are still not charged for using the roads, besides the negotiation procedure for tenders is slow and costly.

It is difficult, therefore, to design a perfect mechanism since all the measures adopted have had both advantages and drawbacks. Moreover, if one tries to reproduce the experience of one country in another country this may fail badly because institutions, legal systems and characteristics of the private sector are not necessarily the same everywhere. In spite of this, it is always useful to learn from the positive and negative experiences of other countries to improve the institutional framework in order to bring about the highest social efficiency.

## **5. STRATEGIC ANALYSIS OF THE JAPANESE TOLL EXPRESSWAY ORGANIZATION**

On the basis of the previous sections, this section includes an analysis of the Japanese toll expressway system followed by some challenges and reform proposals for the future.

### **5.1 STRENGTHS AND WEAKNESSES**

The Japanese toll road system has important strengths:

- The establishment of large toll expressway companies enables the cross subsidization of different sections of the network, which promotes social

and regional equity. The busiest sections, which are often situated in the wealthiest regions, subsidize the less busy sections, often situated in less developed regions.

- The establishment of large companies may also prompt economies of scale in the maintenance and operation of the whole network. The companies can deploy their employees more efficiently; better use maintenance machinery; more effectively run traffic control centres, and so on.
- The creation of JEHDRA as an agency responsible for repaying the debt issued to fund the construction of a network of expressways reduces the cost of funding new expressways in two ways. First, the creation of a pool in which both new expressways with risky traffic and existing highways with consolidated traffic are put together contributes to reduce the cost of funding new *greenfield* projects since it is the pool of revenues rather than the revenues of the project itself that in the end pays back the debt. Second, JEHDRA is regarded by the lenders as a public authority who, in the case of a revenue shortfall, will be supported by the government. This advantage has the problem though that the revenue risk is transferred in a certain way to the government and ultimately to the taxpayers.

However, the Japanese system has also some weaknesses:

- The shares of the private companies are mostly controlled by the public sector. Consequently, the government is at the same time on both sides of the contractual relationship. This situation may cause certain decisions, such as the level of the tolls or the maintenance standards of the network, to be considered from a political perspective rather than efficiency or quality of service. Moreover, when the principal and the agent of the relationship are broadly speaking the same institution, there is scarce incentive for the government to be demanding with the companies.
- The lack of competition in the tender does not encourage the companies to search for innovative measures to be more efficient neither does this push the companies to reduce costs.
- The fact that the expressway companies do not make profits by having more traffic does not encourage them to implement commercial campaigns or to undertake investments in order to motivate the users to use the expressways.
- The current relationship between JEHDRA and the companies does not include economic incentives in order to promote a better quality of service in terms of improvement of safety ratios, reduction of congestion, and so on.

- The tolls are set up by the government as part of the transport policy measures. This may cause tolls to fluctuate because of political or social pressures. When tolls are established in a contract between a public agency and a private company, the government has little room to change the tolls because of political or social pressure.

## **5.2 CHALLENGES FOR THE FUTURE**

In spite of the long economic crises experienced by Japan in the last decade; Japan is the second largest economy of the world right behind the United States. However, Japan is striving to accelerate its economic development again so the expressway network is still crucial to reach this goal.

Japan has already started a process towards a higher participation of the private sector in the provision and operation of toll expressways in the country. However, there is still plenty of scope to go forward. The future of the management of the toll expressway system in Japan should be conscious of and take into consideration the advantages of the current system, but at the same time should try to move forward towards greater efficiency. In this trend, the Japanese government should, on the one hand, analyze the successes and failures of other countries around the world. And on the other hand, try to respect the special characteristics of Japan.

Below I point out some reforms that could be assessed jointly by the Japanese government and JEHDRA regarding the organization and management of the toll expressways in Japan in the future:

- The expressway companies should try to move towards ownership by private companies instead of by government-owned companies in order to clearly separate public and private interests, responsibilities, and risk allocation patterns.
- The participation of private companies should be carried out through competitive tendering in order for companies to have enough incentives to be innovative and efficient.
- The competitive tender should be based on the framework of a contract between the public sector and the private companies that has to be as complete as possible. This contract should be careful in preserving the public interest whilst at the same time gives enough flexibility to the private companies to include their skills in being efficient when providing an optimal quality of service.
- The contracts should incorporate bonuses and penalties to reward or penalize the quality of service provided by the private companies. This

should necessarily include incentives to improve safety and reduce congestion.

- The contract should regulate the maximum tolls to be applicable, even though mark-ups can be introduced in case of congestion. The private company however should be free to implement discounts to the expressway users always below the maximum toll regulated in the contract.
- The contract should allow expressway companies to enjoy certain profits related to the level of traffic in order to incentivize them to attract more traffic by commercial campaigns or new investment.

## **6. FINAL CONCLUSION**

The main conclusion of this report is that even though Japan has already got an outstanding toll expressway network, the government has still to step forward towards a greater involvement of the private sector in the management and financing of the toll expressways.

The key for the success of public private partnerships is the right allocation of risks of responsibilities between the private and the public sector. This allocation can not be the same in each country since each country should allow for its specific characteristics, such as: culture, legislation, labour market, construction market, and so on. However, this allocation should try to promote enough flexibility to the private companies, and at the same time should safeguard the public interest.

Japan has made a great advance in the last few years, but it seems that it tends to lean towards the public sector side. In other words, the regulation and the public interest may constrain the flexibility of the private sector to incorporate their skills and abilities towards a more innovative and efficient toll expressway management. In this respect, Japan should think to move in the near future towards a greater involvement of the private sector in the toll expressway business.