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CHALLENGES FOR THE SUSTAINABLE DEVELOPMENT OF ROAD SYSTEMS

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ABSTRACT

The Spanish Ministry for Development is currently implementing an infrastructure and transport policy with which it intends to promote an intermodal approach to the transport system itself. To this end, it has carried out a substantial planning effort drawing up the Strategic Infrastructure and Transport Plan, which naturally includes the road system infrastructure that has been subjected to environmental assessment and to social concertation with the other road agencies.

The Plan analyses the need to create and maintain infrastructure and the management and financing possibilities for the investment required. This Plan is applied to roads through a Sectoral Plan.

In this context, the Public Overland Transport Infrastructure Company was created to facilitate the financing of road and rail infrastructure in order to be able to maintain a strong pace of investment without affecting the budgetary balance.

New concessionary systems have also been set up to adapt, upgrade and maintain the so-called first-generation expressways, spanning a period of 20 years, by means of shadow tolls in which the concessionaire takes on the construction, availability and demand risk, thereby complying with EUROSTAT requisites concerning national accountability so that these contracts have no negative effect on public deficit.

The Strategic Infrastructure and Transport Plan specifies that public budget funding will continue to be the largest source of finance for transport infrastructure, amounting to some 60% of investment for the Plan's 2005-2020 horizon, and it envisages increasing private-sector partnership through the use of Public/Private Collaboration formulas. To this end, partnership collaboration between the public and private sectors will be encouraged in order to optimise project viability through this management scheme in accordance with European Union recommendations.

1. INTRODUCTION

In Spain, the three-tier administrative distribution - Central, Regional and Local - promotes the continuation of an analogous distribution of powers in infrastructure. Specifically, road infrastructure in Spain is organised as follows. Three levels of network exist, one for each administrative category. The State-run Road Network is defined in Road Act 25/88 and is comprised of roads that either form part of major traffic routes, constitute accesses to ports and airports of so-called General State Interest or link autonomous communities as the Spanish regions are termed. This network is over 25,000 km long.

The Ministry for Development, through Royal Decree 1476/04 stipulating its basic organic structure, commissions its Directorate General of Roads with the tasks of designing, building, running and maintaining this State-run Road Network.

The Ministry for Development, complying with Government directives, is in the process of implementing an infrastructure and transport policy, conceived as an instrument for achieving the major goals of economic and social policy, namely, promoting competitiveness and economic development and strengthening social and territorial cohesion.

This policy responds to a global approach to necessities and potentialities and to an intermodal approach to the transport system itself. In order to do this, the Ministry for Development drew up a Strategic Infrastructure and Transport Plan (known by its Spanish acronym PEIT), which was passed by the Government on 15 July, 2005.

This Plan responds to the objective of carrying out a rigorous estimation of real requirements and organising an efficient assignment of scant funds, utilising planning as the instrument in which to set medium-term actions, allowing them to be adapted on the basis of certain specific criteria and priorities. Planning in this context is therefore understood to be an ongoing and flexible process permitting a stable framework to be created for the transport policy.

The PEIT represents the greatest effort for infrastructure provision ever carried out in Spain involving investment amounting to almost 250,000 million euros, implying an annual funding of over 15,000 million euros corresponding to an average 1.5% of the GDP over the sixteen years covered by the Plan running from 2005 to 2020.

The PEIT lays down the economic and financial framework for its execution. The PEIT 2020 scenario opts to stabilise Ministry for Development investment levels, to advance progressively towards self-financing of the transport system as a whole and to develop formulas for the transfer of funds between modes, always provided that they contribute to the intermodality of the system as a whole. All of this motivated by the budgetary restrictions imposed by the policy for curbing public deficit and the growing need to dispose of more and better infrastructure.

The PEIT provides for an ambitious set of actions. Although it assigns the most important investment to the rail sector, coming in a prominent second place is road infrastructure for which it has the following aims:

- territorial balance, improving accessibility to the areas with poorest facilities;
- improving Road Safety, in the existing network and in the design criteria for new projects;
- facilitating fluidity on the interurban sections of the State-run network and fostering intermodality in urban sections as the best means of attending to current demand;
- functional rationalisation of the network in relation to traffic, the territory to be served and its ownership;
- stepping up efforts in conservation, maintenance and operation of the national road resources by modernising their management and making a progressive increase in investment;
- contributing to the development of intermodality in passenger and goods transport;
- achieving the best possible integration of roads into the environment.

A broad participation process was employed for drawing up the PEIT, including a Sectoral Congress and a public information process open to all citizens and social partners.

Equally, the PEIT was subjected to an environmental assessment in accordance with the criteria and principles of the European Directive.

In addition and in compliance with the legal framework existing in Spain, specifically with the Road Act, the PEIT must be implemented with a specific plan for this transport mode - the Sectoral Road Plan. And according to the regulation of this Act, prior to Government approval, the Ministry for Development is to draw up a preliminary report of the Sectoral

Plan, to be sent to the Autonomous Regions in order to allow them to make observations and suggestions.

Several budgetary and extrabudgetary financing modes are provided for in relation to road infrastructure and within these, different formulas, some of the more innovative examples of which are described in this Report, such as the case of creating a State Trading Entity, a concession for the Upgrading, Conservation and Improvement of First Generation Expressways and the evolution of traditional concessions with their new regulations coming into force.

Specifically, the PEIT stipulates that, within its horizon, public budget financing will be approximately 60%, with an increase of up to 20% in private-sector funding which, in the case of rail investment amounts to some 18.6% and for roads represents approximately 25% of the investment in new infrastructure, chiefly entailing the use of the public works concession scheme.

2. THE SECTORAL ROAD PLAN

The Sectoral Road Plan develops the Strategic Infrastructure and Transport Plan (PEIT) with a 2020 horizon over the period 2005/2012 and is structured into three programmes - an interurban action programme for expressways, motorways and upgrading, an intermodal programme including periurban actions and a conservation and maintenance programme. It is expected to be passed at the end of 2006, subsequent to carrying out the procedure for submitting the Preliminary Version of the Plan to the Autonomous Regions for them to formulate any observations or suggestions they deem fit thereon and the consultation phase concerning this Preliminary Version, which includes the environmental sensitivity report. All of this in compliance with Act 9/2006, of 28 April, on the Assessment of the Effects on the Environment of Specific Plans and Programmes.

The actions will be scheduled for the 2007-2012 period – independently of the fact that the actions politically committed in 2005 and 2006 are considered to be integrated into the Plan's economic forecasts, with a view to integrating these in turn into the forecasts for the PEIT. This is the reason for defining the period for the Sectoral Road Plan as (2005)-2007-2012. This scheduling has been arranged in accordance with the economic, socioeconomic, environmental and territorial criteria that have served as basis for drawing up the Plan.

- Priority attention to safety, in deference to the public outcry against traffic accidents, involving a resolute commitment to collaborate in reducing them from the infrastructure policy; and a commitment to conservation which, in addition to being essential to providing a good service, permits road transport efficiency to be optimised and the overall resources assigned to infrastructure in the long term to be minimised.
- Strategic environmental assessment of the Plan itself, which represents an essential qualitative leap in road planning and directly ties in with the sustainability target,
- Priority given to optimising the service provided by the current network in preference to the creation of new infrastructure, which will lower congestion and improve mobility by minimising the need to occupy more territory.
- Strengthening coordination between the State-run and regional road networks and their operational rationalisation, which will involve better and more balanced accessibility to the territory which in turn will result in enhanced efficiency for the overall system.

- Importance given to measures integrating roads into the territory and safeguarding environmental and cultural values.
- Consideration of intermodality and public transport as essential aspects at the time of road planning, which will have a decisive effect on improving fluidity and curbing the environmental impacts of mobility improvements.

The Sectoral Plan is arranged in the three programmes mentioned above, which are developed in a number of subprogrammes.

The Operation and Maintenance Programme includes the following subprogrammes: Road Safety including the correction of accident concentration sections and preventive action; Cross-town Link Upgrading with its highly beneficial effects on safety and the territorial integration of roads; Maintenance and Serviceability; Replacement and Improvement; and Operation, which includes action designed to optimise use of the network.

The Operation and Maintenance Programme also includes a set of subprogrammes which, without strictly comprising conservation work, need to be managed in conjunction with this and are aimed at integrating existing roads into the surroundings in order to provide the current network with the best possible environmental quality. These are the subprogramme for installing noise screens and the territorial, scenic and environmental integration subprogramme. And linked to the latter is the subprogramme for actions on historic routes, which identifies the main historic routes such as the Road to Santiago, the Mesta medieval rights of way for sheep and the Roman roads, with a view to settling the conflicts arising at the points where they merge or coincide with the network.

The Operation and Maintenance Programme, along with the contribution to safety provided by converting over 4,000 km of conventional roads to expressways and upgrading approximately 2,000 km of first generation expressways, is expected to achieve the major European goal of cutting down road mortality in 2010 to half the 2002 rate, although, as is only obvious, road safety is a consequence of multiple factors in which infrastructure is just one more aspect.

The Interurban Infrastructure Creation Programme includes, for high capacity roads, the subprogrammes for Increasing the capacity of existing motorways, Improving interchanges and junctions, Upgrading first generation expressways, Ring-road expressways for major cities representing the top priority as they are aimed at lowering congestion in urban environments and Motorways and expressways, including all those defined in the PEIT, prioritising the sections serving to close off routes already functioning, as also the sections with the greatest traffic forecasts over the Plan's horizon when no alternatives exist. And for conventional roads, the subprogramme on Upgradings and Bypasses for built-up areas.

With these criteria, the length of high capacity roads eligible to be put out to tender within the economic and time constraints of the Plan exceeds 4,000 km. A further 740 km must be added to these as roads envisaged as being eligible for tolling, thereby leading the way to private participation as planned in the PEIT.

And finally, the Intermodality and Periurban Action Programme includes the subprogrammes for Port accesses, Airport accesses, Bus lanes, Improvements to bus stops and City accesses.

All of this will be subjected to a Strategic Environmental Assessment meaning that, for the first time, the overall environmental effects of a Sectoral Road Plan will be able to be ascertained and quantified. For this, the environmental information available on the Natura 2000 Network, habitats, IBAs, land uses and landscape has been integrated into a Geographical Information System (GIS) on a scale of 1:200,000 which, combined with the possible corridors suggested for the expressways included in the PEIT, means it will be possible to ascertain which routes will have maximum and minimum impact according to the indicators considered and to integrate this information into the decision-making process on scheduling for actions along with other economic or territorial factors. In addition, the gas emissions that would be produced in different action scenarios have been quantified, including a zero action scenario consisting of only conserving the existing network without creating any new infrastructure.

This environmental assessment is considered to be an essential qualitative leap in the planning of roads and ties in directly with the sustainability target constituting the guiding principle of the entire Plan.

One of the most important aspects of the Plan is determination of the economic, financial and organisational resources required to develop and execute it.

The economic and financial resources are based on the provisions earmarked in the PEIT for road programmes, i.e., approximately 67,000 million euros between 2005 and 2020, both inclusive. The heaviest assignment in this amount corresponds to the creation and improvement of high capacity roads, accounting for almost 48%, followed by the operation and maintenance programme with its 34%.

The financing requirements demanded by the Sectoral Road Plan, including toll motorways, represent slightly over 51,300 million euros, some 15.34% of which is expected to be obtained from private funding.

This amount of private sector funds does not include the financing for first generation expressway concession programmes as, in the last resort, these will be funded by budgetary resources which have naturally been included in the total computation.

Comparing these requirements with the predictable increase in budget earmarked for roads over the Plan's term of validity, it is evident that they could be covered with a reasonable growth rate from the current budgets upwards.

It must be borne in mind that the Sectoral Road Plan is scheduled on public tendering terms so that the works tendered out in the last years of the Plan will have repercussions on the budget after the end of its validity period that must be taken into account, in the same way that the commitments carried forward from tenders called prior to the Plan's validity period have been integrated.

Another aspect worth highlighting concerns the organisational resources needed to develop and execute the Plan and to guarantee the operation and maintenance of the road system. The Plan consequently analyses the need to modernise the State-run Road Authority if the road policies are to be applied efficiently and successfully, particularly those expressed in the actual Sectoral Road Plan itself. Amongst other things, this modernisation requires:

- implementing more flexible procedures,
- setting up objectives-based management policies,
- motivating the technical and professional teams,

- rationalising control and monitoring systems,
- facilitating public/private collaboration and generating additional income.

3. ADAPTATION, CONSERVATION AND IMPROVEMENT OF FIRST GENERATION EXPRESSWAYS

When drawing up the PEIT and its subsequent development in the Sectoral Road Plan, the key established for the correct implementation and provision of transport infrastructure in Spain was renewal and adaptation of first generation expressways, aiming for them to achieve the levels of safety and service quality provided by the recently built expressways and motorways.

The first phase will involve upgrading approximately 1,520 km corresponding to the following expressways (Figure 1):

- A-1: Madrid - Burgos (235 km)
- A-2: Madrid - Saragossa (335 km)
- A-3: Madrid - Alicante (414 km)
- A-4: Madrid - Seville (537 km).

The second phase will include a further 580 km on Expressways A-5 and A-6 and will commence in the 2008/2012 four-year period.

<u>PROGRAMA DE ADECUACIÓN DE AUTOVÍAS DE PRIMERA GENERACIÓN</u>

Figure 1 – Upgrading programme for first generation expressways

The initial investment required to provide the improvements planned, refitting the expressways from scratch as it were, is divided into two concepts:

- adaptation, refurbishment and modernisation: treating accident concentration sections, improving alignment, redesigning junctions, upgrading road equipment;
- replacement and major repair: pavements, underpasses and road equipment.

The volume of funds required to carry out these refit from scratch actions, in Phase One, is approximately 1,955 million euros, to which must be added the future expenses associated with routine maintenance and scheduled rehabilitation of the routes, the total for which over the 20 years considered would amount to 2,040 million euros at the 2006 rate. Consequently, the total investment for Phase One of the Programme amounts to approximately 4,000 million 2006 euros.

Given the priority nature of these actions and the lack of budgetary funds to cover them and the associated maintenance in a short space of time, it becomes necessary to resort to an alternative financing and management formula, namely public works operating concessions for a 20-year period.

The Terms and Conditions defined for the concession tendering process makes it compulsory for concessionaires to execute initial improvement and refit from scratch works during the first two years of the concession period. During the rest of the contractual period, concessionaires are obliged to maintain the section at the standards of quality set in the actual Terms and Conditions. Failure to provide the stipulated standards will give rise to penalisations that may go as far as monetary sanctions if serious breach of contract is involved. Equally, if standards are improved, the Terms and Conditions provide for bonuses for the successful bidder. This will guarantee an adequate service provision and road maintenance on the part of the concessionaire.

The advantages with this approach are therefore:

- immediate availability of the actions necessary - improvement of safety conditions and compliance with the new regulatory framework as soon as the works are put out to tender, concessions granted and the servicing works built;
- private-sector efficiency - savings in the costs incurred for operating the road (contribution of capital and know how);
- a boost to competitiveness in the sector, improved transparency.

The preliminary works designs and viability studies for each of the sections that will be put out to tender have already been carried out, approximately 16 in all, and the necessary environmental proceedings begun for application for the Environmental Impact Declaration for the sections requiring this and its granting where appropriate.

In addition, traffic studies have been carried out to ascertain traffic density forecasts based on the existing ADT rates, on the proportion of heavy goods vehicles out of the total and on vegetative growth rates. In conjunction with established macroeconomic and financial theories, the most likely development scenario has been obtained for each individual section.

With regard to the economic and financial regime for the concessions, concessionaires will receive demand-based revenue through shadow tolling, fixed as a function of the tariff per vehicle and kilometre at which each individual concession was granted. Furthermore, a substantial portion of the concessionaire revenue will be remuneration, based on the levels of service quality or availability provided. The following indicators will be taken into account for quantifying the monthly levy to be paid to concessionaires:

- technical quality - state of the roadway, underpasses, tunnels and equipment,
- road safety levels,
- correct management - service levels, winter serviceability, accident attention.

The tariffs per vehicle and kilometre will be set to allow private partners to achieve a return on the investment made and on the operating costs throughout the concession period, as a function of the traffic forecasts for each section, with a view to making the competitive bidding process appealing to private enterprise and without this involving excessive pay-outs by the concession granting agencies (public authorities). In addition, in order to define the annual outlay by public agencies, a ceiling tariff structure has been set up which determines the traffic volume as from which concessionaires will receive only 10% of the basic unitary tariff for each vehicle. It should also be stressed that an HGV tariff is also planned, which will be equivalent to 1.4 times the light vehicle tariff.

Return levels that are reasonable from both the investor's point of view and the operating market for similar projects have been taken as benchmark. These return rates constitute a factor guaranteeing participation in the open bidding processes and set up better conditions for competitive effort in the tenders submitted.

Concessionaires will consequently take on, in addition to the construction risk (increased costs and delays in executing the servicing works), the demand and availability risks, so that the indebtedness associated with each investment project will not be sunk in State funds but in concessionaire funds.

The demand-based risk is assumed to be taken on when a decrease in real traffic rates as compared to the ADT forecast in the tender's economic and financial plan substantially depletes the concessionaire's rate of return, as does a negative change in the tariff structure.

The availability risk is also taken on by concessionaires given that their returns will be linked to the indicators of the road condition and quality of service they provide for motorists.

This method, making it possible to transfer the construction and availability risks to the concessionaires, therefore fulfils the EUROSTAT requisites in relation to national accountability in that these contracts do not have any negative effect on public deficit.

4. THE PUBLIC OVERLAND TRANSPORT INFRASTRUCTURE COMPANY

The Public Overland Transport Infrastructure Company (known by its Spanish acronym SEITT) was created to facilitate financing for road and rail infrastructure in a way that allows a strong investment pace to be maintained without affecting the budgetary balance. The SEITT will enable new actions to be put out to tender for over 1,200 million euros.

The Public Overland Transport Infrastructure Company is a public trading company created under Article 166.2 of Act 33/2003, dated 3 November, on Public Administration

Assets. It was created by Council of Ministers Agreement of 29 July, 2005 and set up on 30 November, 2005.

SEITT is legally constituted as a limited liability company with the particular feature that the Spanish State owns the whole of its shares. This implies that its General Shareholders Meeting is represented by the Directorate General for State Assets and that its Board of Directors is composed of top directorships in the General State Administration and its Chairperson is the Secretary General of Infrastructure of the Ministry for Development, which is the overseeing Ministry.

Its objective is to promote and develop overland transport throughout the national territory and relative to all overland transport modes. To this end, SEITT has full powers to act in the different infrastructure stages involved from design to operation and to sign agreements, promote the creation of mixed companies and any other legal form of collaboration with entities from both public and private sectors with an interest in developing overland transport infrastructure. This includes all types of overland transport infrastructure without any limitation whatsoever and extends to transport centres and accesses to the infrastructure for other transport modes such as ports and airports as also areas of public domain, service areas and associated functional elements.

It was set up with a dual purpose - on the one hand to execute road and rail infrastructure in an efficient manner and, on the other, to create a framework for the participation of private capital.

SEITT is therefore constituted as an instrumental company at the service of the Government's infrastructure policy. As such, its functions do not include infrastructure planning or policy, which correspond to the Ministry for Development. With this initial proviso made, SEITT is fully empowered to act in the rest of the infrastructure generation process, in accordance with the statements made above.

SEITT is thus fully qualified to carry out both technical and economic and financial viability studies, preliminary plans and construction plans, to manage contracting, execute the works and operate the infrastructure generated.

The company's trading nature also allows it to set up appropriate partnerships on a case by case basis with private investors, public agencies, financial institutions, beneficiaries of the infrastructure or any capital gains that could arise and in general with any public or private agency that could show interest in participating in transport infrastructure.

In addition to participating through agreements in the generation of publicly funded infrastructure, SEITT constitutes an instrument for making extrabudgetary investment in overland transport infrastructure and therefore has the task of channelling private infrastructure investment through the different formulas for public/private partnership that will be set up in each individual case.

According to its Articles of Association, SEITT will develop the road-related activities in the framework of the mission given it by the Ministry for Development in the corresponding agreements, as per Article 158 of Act 13/1996, dated 30 December, on Fiscal, Administrative and Social-Order Measures. These agreements should at least regulate the following concepts:

- the construction and/or operating regime of the State-run roads involved;

- the jurisdiction of the General State Administration in respect of the management, inspection, control and reception of works to which in any event it holds title;
- the economic contributions to be made by the General State Administration to the public company, for which purpose the former is entitled to take up relevant pluriennial expenditure commitments, without being tied to the limitations laid down in Article 61 of the reworded text of the General Budget Act, passed by Royal Legislative Decree 1091/1988, dated 23 September - the provisions made under this wording are in any case understood to be without prejudice to any contributions the public company could receive from other public or private entities by virtue, where appropriate, of the conclusion of the corresponding agreements;
- the guarantees that will have to be set up in favour of the entities financing the construction and/or operation of State-run roads.

The human resources team at SEITT is headed by a Director General who is responsible for Company management and carries out the directives and objectives laid down by the Board of Directors.

Four management departments are accountable to the Director General and carry out the work of developing the tasks in their corresponding fields. These are Infrastructure Promotion Management, Economic and Financial Management, Technical Management and Administrative Management.

The Infrastructure Promotion Management Department deals with locating and studying the actions capable of being carried out by the Company, taking into account their economic and financial viability, funding requirements and method, the possibilities of public/private partnership and the ways in which this collaboration can be implemented, raising of capital gains capable of partially funding the operation, future exploitation of the action, its facilities and adjoining ground, the possibility of setting up payments for the use and/or availability of the infrastructure and, in general, all the factors needing to be taken into account for the promotion of infrastructure, always seeking optimisation of the resources to be employed.

The Economic and Financial Management Department is responsible for the Company's economic management, for investing its own funds to achieve maximum returns, always in terms of security, for disposing of the liquidity necessary to meet Company liabilities according to budget forecasts, for purchases, for monitoring Company accounts, for managing the Company's human and material resources and for all the financial tasks required for the Company to run smoothly.

The Technical Management Department steers, controls and monitors the actions promoted by the Company, analyses their technical feasibility, prepares the documents and technical reports required for their planning and contracting, heads the projects and works carried out directly by the Company and supervises the other actions which the Company convenes with third parties, carrying out technical monitoring and reporting to the Executive on the state of execution of the actions, any incidents occurring, the stage of execution of the works programmes, any deviations observed and envisaged in deadlines and budget and all the technical aspects related to whatever actions prove necessary.

The Administrative Management Department deals with contracting, with managing the compulsory purchase proceedings on goods and rights affected by the actions to be carried out by the Company and with processing, following up, expediting and controlling the legal proceedings the Company needs to initiate in order to carry out its activities.

SEITT receives legal council from the State Legal Service within the framework of a convention signed by both parties.

5. PUBLIC/PRIVATE PARTNERSHIP

The past ten years have seen a substantial increase in infrastructure volume in Spain, construction of which was financed with contributions from private funds. The formula preferentially applied has been the concession system, which can be placed in the purely contractual group of formulas, i.e., a model characterised by the powerful link existing between the private partner and end user. It is the private sector that provides a service for the general public instead of the public sector, but under public sector control. Likewise, the manner in which the concessionaire is remunerated basically consists of:

- levies paid by users of the service (tolls) and
- subsidies granted by public powers.

Spain however has a legal framework, Act 13/2003, dated 23 May, regulating public works concession contracts, which is broader in scope than the one described and refers to:

- infrastructure in general: roads, rail, ports and airports,
- direct tolls paid by users.
- shadow tolls paid by the Government;
- soft tolls, a combination of direct tolls and subsidies;
- other Government contributions which, while generically confined to the assumption that “grounds exist for economic or social profitability, or special demands concur derived from public aims or the general interest of the works the subject of the concession”, can consist of joint financing for the works, through monetary or non-monetary contributions, subsidies or loans repayable with or without interest, or participatory loans, provided that the principle of the concessionaire taking on the risk is in all events respected;
- operation of the shopping areas as activities complementary to the public works, subject to the principle of Public Administration unity of management and control by the granting public authority and joint operation of the works by the concessionaire either directly or through third parties in the manner stipulated in the Terms and Conditions for the concession.

The PEIT has analysed how much infrastructure Spain needs, in accordance with the targets set, and what the budget availability will be for the 2005-2020 period covered by the Plan. The difference is the amount that must be covered by public/private partnership.

Specifically and as commented above, private investment provision is set at 20% of the total investments envisaged over the Plan's horizon. In the specific case of roads, the percentage rises to 25% of a total of 30,000 million euros, consequently a forecast of 7,500 million euros in motorway concessions. These investor requirements call for the potentiality of these public/private partnership models to be put to good use.

Having ascertained the amount involved in this type of financing, what remains to be decided is the way in which it will be implemented, in line with the possibilities of the new regulatory framework. One of the advantages of tolling is that, to a certain extent, it permits a geographical distribution of State subsidies as it uses public aid to complement user payment capacity in the different parts of the territory. This is the reason why each road involved will provide the answer. Wherever sufficient traffic is generated and, in addition, an alternative route exists for the road, a traditional tolling system can be imposed. In cases where no alternative route exists, it will be possible to introduce shadow tolling. And in cases where insufficient traffic exists and there is an alternative route, the State will be able to collaborate to enable the concession to achieve sufficient return.

In recent years, Spain has gradually concessioned all the motorways generating most traffic so that it will be difficult to find routes viable for straight toll concessions. They will essentially be concentrated on the closing sections still to be built for existing routes.

Shadow tolling will be difficult to implement where toll-free parallel roads exist since it would be more useful to allocate those funds to redesigning these existing roads. In any event, it would be possible to do this when the alternative routes achieve a level of saturation making it uneconomical to continue to extend them. This possibility could also be considered for the individual high-cost redesigning of long, toll-free stretches or in the event of contracts in which the major portion of the cost goes on maintenance over a large number of years when new construction exists.

Finally, the third possibility is the one considered to have the greatest options of execution in Spain. It refers to the existence of sections that are apt for tolling but where economic studies on them do not forecast sufficient traffic for investment to be recovered. In this respect, the State will collaborate by contributing the economic bonus necessary to make the concession viable.

As a result of this and the experience accumulated in competitive tenders for concessions, the Tender Model for a public concession contract has been improved in two aspects. Firstly with reference to public financing (basically in the form of participatory loans), loan application has been removed from the list of competitive scoring items, in other words, bidders will not be penalised for applying for more or less public aid (up to the limit specified in the competitive tender).

Secondly, the Tender Terms and Conditions clauses have been improved by increasing the number of quality criteria for the grant of bonuses for excellence of management. In this respect, meeting all the criteria demanded could give rise (in that hypothetical case) to four more years of concession, which could represent an additional 25% in income terms and an additional 50% in terms of benefit to the concessionaire.