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ANALYSIS OF HIGHWAY CONCESSIONS IN EUROPE *French Study for the DERD/WERD*

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INTRODUCTION

Following the report on "**Road financing and organization of road administrations in Europe**" of September 1997, it became clear that the concession option was in widespread use in the road sector in Europe. France was consequently requested to complete this work by a study covering a detailed analysis of the concession methods practised by road administrations.

How do the **different European countries define motorway concessions**? Do the concession authorities have roles which differ from one country to another? Are the concession companies **selected on the basis of the same criteria**? Is **risk sharing** between concession authority and concession company the same throughout Europe? How are concession contracts situated by comparison with other infrastructure funding methods? This report sets out to answer all these questions by analysing both toll concessions (as in the case of Italy, Spain, Greece, Portugal, Norway and France) and shadow toll concessions (United Kingdom, Finland, Netherlands, etc.).

The conclusions of this report are based on the replies received from 15 road directorates, to a questionnaire sent out in April 1998. These replies have made it possible, **firstly to obtain a clearer picture of the application of motorway concession contracts in the various European countries, and secondly to identify more accurately the difficulties currently encountered by the European road administrations in the utilisation of the concession option.**

The report also includes a summary of European Community legislation currently in force in the motorway concession domain (Council of Europe directive 93/37/EC dated 14 June 1993, concerning the coordination of procedures for the issuance of government work contracts, European Commission green paper on "Government contracts in the European Union" presented on 27 November 1996, European Commission communication COM(98): "Government contracts in the European Union" dated 11 March 1998, etc.). This legislation takes on a particular importance in this domain, as it concerns both the setting of charges for infrastructures, public-private partnerships, State aid and the award of government contracts..

In conclusion, the report includes a **detailed analysis of the key elements of a motorway concession contract**: duration, amount of toll charges, procedures and criteria for the selection of a concession company, ownership of the infrastructure, sharing of risks between concession authority and concession company, etc. In the light of considerable experience both in Europe and elsewhere in the world, the report attempts to identify a number of **essential clauses to be included in a concession contract, and to take an inventory of the most efficient practices.**

This report was prepared by Franck BOUSQUET, Adviser on Economic and European Affairs, French Highway Directorate (Tel : 33 1 40 81 88 52, Fax : 33 1 40 81 12 29), on the basis of replies received to a questionnaire sent out to the European road administrations.

As the WERD Club is first and foremost an informal forum for the exchange of experience in the road sector, no proposals included in this report will in any way engage the responsibility of the French Directorate of Roads, nor that of any other similar European body.

I. ROAD INFRASTRUCTURE CONCESSION PRACTICE IN EUROPE

This part of the report reviews road infrastructure concession practice in Europe, on the basis of replies to the questionnaire of April 1998 (appended to this report) from the European road administrations. The purpose of this part is not therefore to analyse the subject from a purely legal point of view, but merely to review experience with concessions in the road sector, in the light of concrete examples observed with the public authorities acting as concession authorities.

From the questionnaire circulated to the DERD/WERD¹, it emerges that a concession is identified as a system by which a public authority grants specific rights to an organisation (whether private or semi-public), to construct, overhaul, maintain and operate an infrastructure for a given period. This corresponds therefore to **a contract, under the terms of which a public authority charges a company with making the investments required to create the service at its cost, and to operate the service at its own risk, the company being remunerated in the form of a price paid by the users of the service and/or the public authority.**

Direct payment by the user (in the form of a toll) is used by one group of countries (Austria, Denmark, Spain, France, Greece, Italy, Norway and Portugal). **Payment by the public authority** is practised in Great-Britain, Finland and the Netherlands under the name "**shadow toll**" or DBFO (Design, Build, Finance and Operate), where the State remunerates the concession company, principally on the basis of the traffic observed on the motorway. It should be noted that Portugal and Greece are also currently considering utilisation of this system.

Two criteria appear to be intrinsically linked to the notion of concession:

- **requirement for a transfer of responsibility (risks)** from the concession authority to the **concession company**. The latter must thus be responsible for management of the service concerned, namely operation of the motorway;
- **notion of contract globality**. In contrast to a work contract, a concession includes that part relating to "operation of the infrastructure", this being subject to remuneration. Whereas a work contract merely concerns a construction task, a concession contract consequently involves both responsibility for a construction programme, and a long-term service as indicated in the following table (this does not exclude sub-contracting all or part of operation of the infrastructure by the concession company).

A second approach to concession arrangements is frequently quoted. **In this case the concession system is defined as a tool used to establish a competitive situation where this does not already exist (or is difficult to institute) for the same contract.** In this sense, a concession does not necessarily involve the participation of a private enterprise, and can be accorded to a state-owned entity. We revert this point in section I.3.4.

¹ DERD means "Deputy European Road Directors" and WERD means "Western European Road Directors"

Principal differences between a concession and a work contract

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

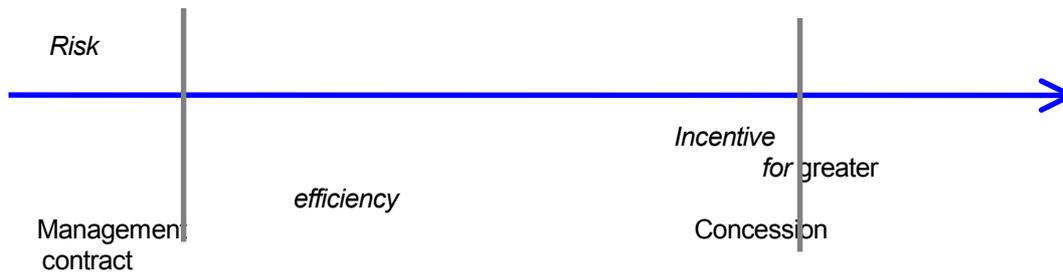
Sources: - SNBATI report - Summary of prime contractor forum: Global construction contracts in Europe, 1997.

- Replies to DERD/WERD questionnaire on concessions.

Infrastructure concession: this can be defined as a contract under the terms of which a public authority accords specific rights to a company to construct, maintain and/or operate a network for a given period. The types of contract listed below are similar in nature to a concession:

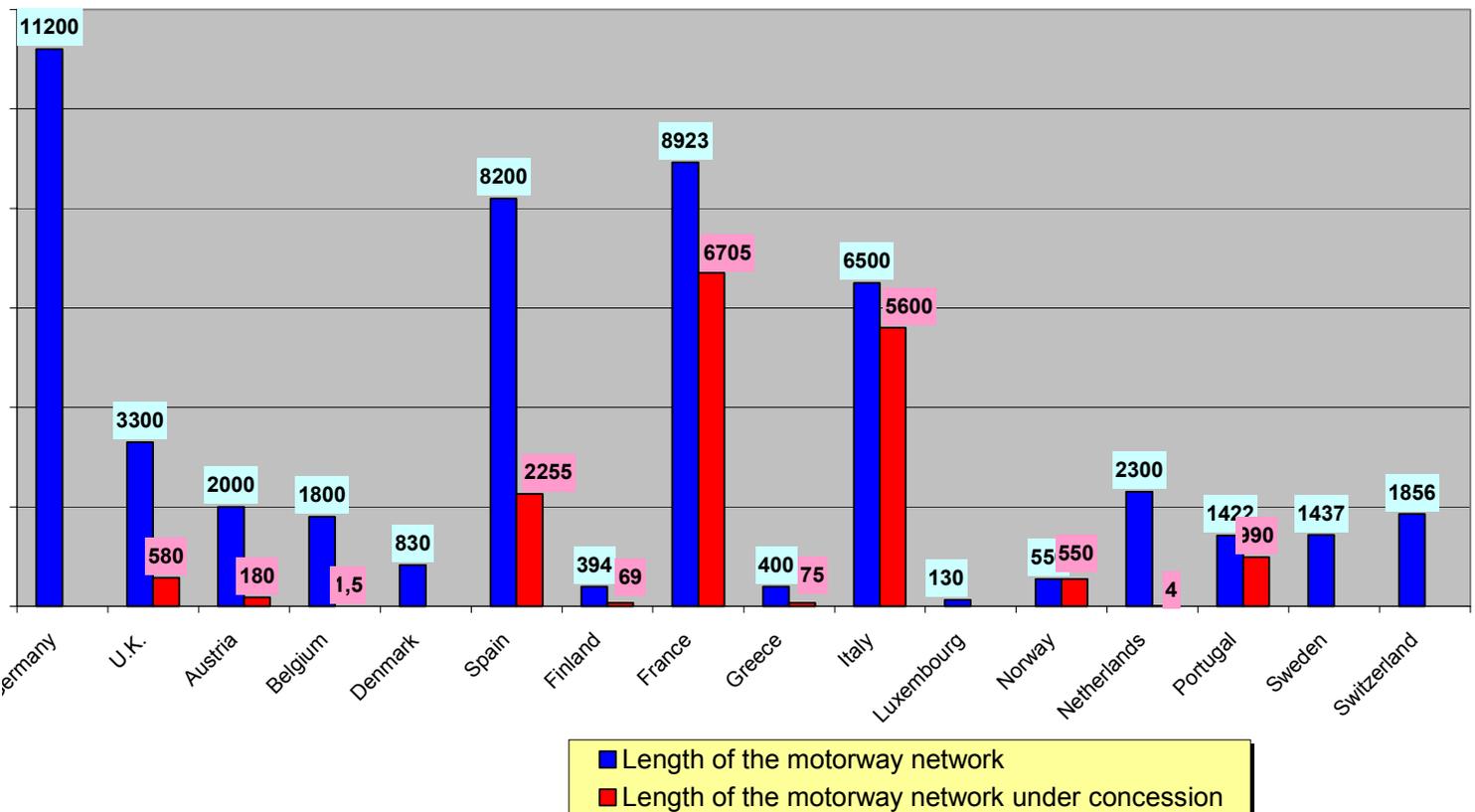
- **BOT (Build, Operate and Transfer):** a company funds, constructs, owns and operates an infrastructure for a limited period (approximately 30 years), at the end of which the infrastructure is transferred at no charge to the concession authority.
- **BTO (Build, Transfer and Operate):** a company funds and constructs an infrastructure, but in this case transfers ownership to the concession authority immediately after completion of the construction phase. It then loans the infrastructure from the State, which it operates for a limited period at the end of which all rights are restored to the concession authority.
- **BOO (Build, Own and Operate):** a company funds and constructs an infrastructure, which it owns and operates for an unlimited period. A variant of this is the BOOT (Build, Own, Operate and Transfer) contract.
- **Lease contract:** this differs from a conventional concession by the fact that the infrastructures necessary for operation of the service are not constructed by the operator (lessee), but made available to the latter by the public authority, which is generally responsible for funding the project. The lessee, who thus has exclusive responsibility for operating the service, obtains remuneration from users, paying a fee to the public authority designed to contribute to amortisation of the investments made by said authority.

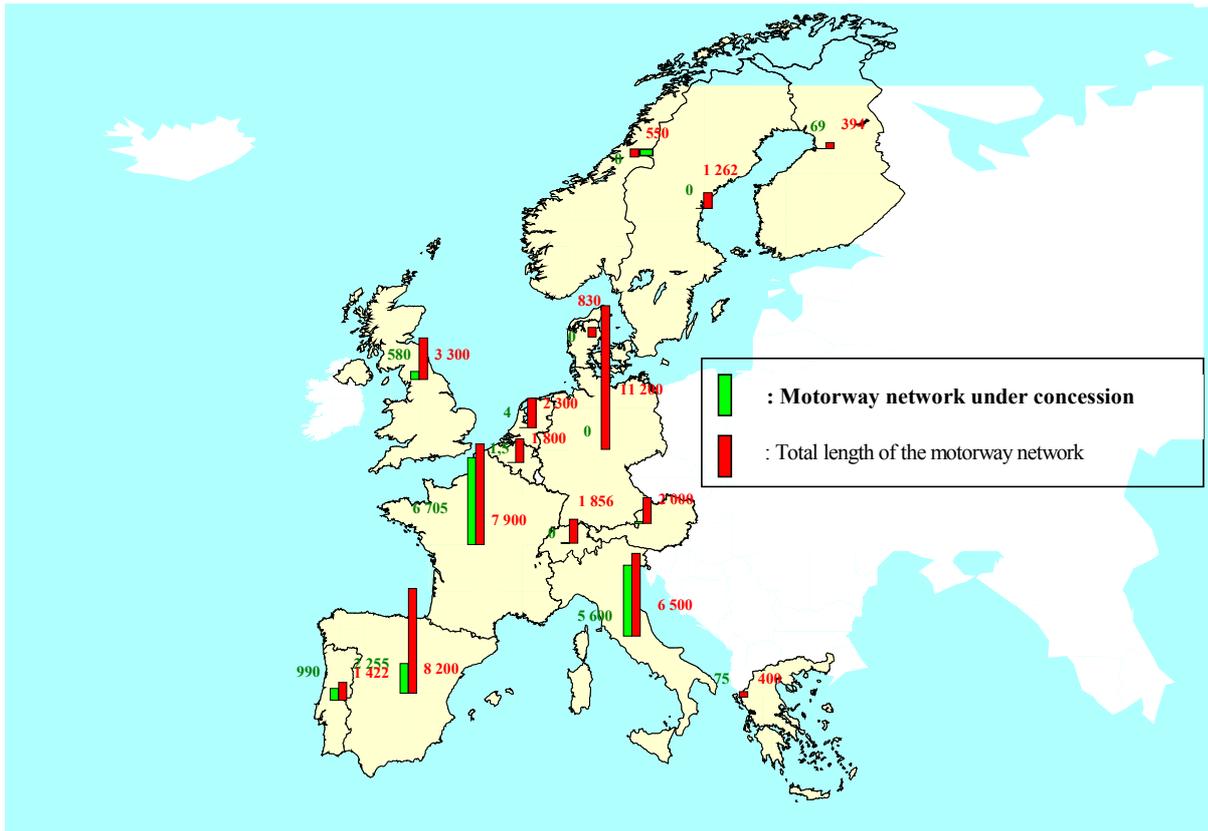
Thus in the case of a concession, and in contrast to a simple management contract, the concession company selected by the concession authority bears the cost of the investment, and some part of the risks. We revert to this aspect in detail in section II.6. This difference between a management contract and a concession can be illustrated in simplified form by the following diagram.



The following table illustrates **concession system practice in the road sector** in western Europe. **Of a total of 51,242 km of motorway, 17,009 km are under concession (33%), of which 16,356 km are on a toll, and 653 km on a shadow toll basis** (see details below).

Practice of Highway Concession in Europe in 1998 (with or without toll)





It should also be noted that concession arrangements are in widespread use throughout the world. As an example, 230 projects were funded under BOT² type arrangements between 1984 and 1995. This solution is being adopted increasingly frequently, as evidenced by a 1995 World Bank study which identifies over 2,000 projects of this type, corresponding to an estimated sum exceeding \$1,300 billion.

I.1 TOLL CONCESSIONS

In countries such as **Austria, Spain, France, Greece, Italy and Portugal**, a concession is associated with **direct payment by the user**, in the form of a toll. In this context, mention should also be made of **Denmark** which has used toll concessions for two crossings. These are the "Great Belt", which comprises two bridges with a total length of 18 km, opened on 14 June 1998, and the Oresund crossing, combining a bridge and tunnel with a total length of 16 km, scheduled to enter service in 2000. **There are also 26 toll companies in Norway³** which are not however concession companies in the conventional sense of the term, being exclusively responsible for the collection of user payments. The Norwegian road administration is responsible for the design, construction and maintenance of toll projects. We revert to this particularly interesting case in more detail later in this report.

² These 230 projects include 50 toll motorway projects in Mexico.

³ Over 100 road projects are under toll (essentially bridges and tunnels over and under the Norwegian Fjords).

I.1.1 Toll system advantages and disadvantages

Toll systems are in widespread use in eight European countries in inter-urban contexts, whether for roads or confined to bridges or tunnels. These are Austria, Denmark, Spain, France, Greece, Italy, Norway and Portugal. The advantages of toll systems, as reported by European road administrations, can be classed in three categories.

The first advantage of a toll system is that **investments can be augmented.** In numerous European countries, toll systems are increasingly recognised as the most efficient means of replacing tax-payer money by user money. The introduction of a toll system for an infrastructure makes it possible to commission at an earlier date than would have been the case with funding from the national budget. The State budget contribution to funding of the French national road system dropped from 56% to 22%, while toll revenue increased from 32% to 57%, over the period 1973 to 1995. **In Norway, toll revenue represents 32% of the State budget for the national road system⁴. The equivalent figure for Spain is of the order of 46%⁵.**

The second advantage of a toll system is that it serves as a tool for **application of the user-payer principle.** In its recent white paper⁶ entitled "Equitable fees for the utilisation of infrastructures: a staged approach for establishing a common framework for transport infrastructure charges in the European Union", the European Commission indicates that fees should be linked directly to the costs which users impose on infrastructures and other citizens, including effects on the environment, and other external impacts caused by users. In its white paper, the Commission sets out its vision of future changes to transport charges in Europe, with particular reference to the road sector. As regards actions to be taken, three phases are considered with differing time scales, as explained in the box below. At all events, the EC recommends a move towards distance-based road charges, one likely to become generalised in Europe.

European Commission proposals regarding the setting of road infrastructure charges

During the initial phase (1998-2000), (...) **Member States will be encouraged to harmonise or adopt compatible road charge systems for heavy good vehicles, either by means of existing systems based on tolls or the European road tax ("Eurovignette"), or preferably, by introducing distance-based fees related more closely to costs. The Commission takes the view that a substantial number of Member States should consider that this type of system will advantageously replace systems involving no user fee, or time-related user fees only. It will also contribute to generalisation of distance-related fees throughout the EC. The Commission will also draft a proposal concerning the environmental classification of heavy goods vehicles, in order to facilitate the introduction of fees which reflect the environmental impacts stemming from utilisation of vehicles more closely. .../...**

⁴ 1993 toll revenue amounted to NKr 1,500 million, compared with State budget expenditure of NKr 4,700 million.

⁵ 1996 toll revenue amounted to Pta 144 billion, compared with a State budget figure of Pta 310 billion.

⁶ COM (98)466 final dated 22 July 1998.

Member States are also encouraged to develop urban road charge systems which take account of the external costs of urban transport, including those associated with traffic congestion. It would not be appropriate for these systems to be organised at EC level, but the Commission will continue to fund research and demonstration projects connected with urban road charges. Any EC legislation liable to impede the implementation of these measures should be revised in order to remove potential obstacles.

During the second phase (2001-2004), distance-related fees should be extended to include external as well as infrastructure-related costs. These fees would also apply to new road concessions, making it possible to introduce a charge system which guarantees cost recovery where new investments are planned. Efforts should also be made to promote the implementation of urban road charge systems compatible with the charges applicable to heavy goods vehicles.

During the third phase (after 2004), the common system should become mandatory. Existing charge systems would then be replaced, both for heavy goods vehicles and commercial passenger transport, by harmonised fees based on marginal cost, and founded on various instruments including tolls and user fees.

Source: European Commission white paper COM (98)466 final dated 22 July 1998: "Equitable fees for the utilisation of infrastructures: a staged approach for establishing a common framework for transport infrastructure charges in the European Union".

A toll system also makes it possible to arbitrate between maintenance and investment. For example in Italy and France, respectively 27 and 25% of toll resources are allocated to maintenance and operation, as illustrated in Figure 2 below. **A toll system thus makes it possible to fund road maintenance, an aspect frequently neglected when conventional funding arrangements are set up.**

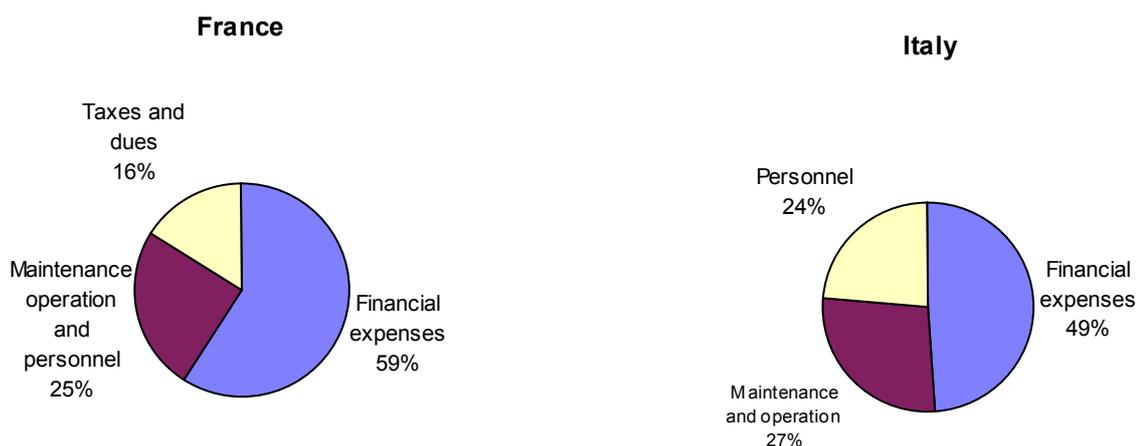


Figure 2. Application of toll revenue in France and Italy (1996)

In this respect, it is appropriate to emphasise the "Norwegian exception", insofar as the Norwegian road authority delegates responsibility for an infrastructure to

an ad hoc company collecting toll revenue from users, where said revenue is not used solely to fund work on the concession section, but also provides funding for adjacent roads or public transport, as recently decided in the cases of Oslo and Trondheim. At all events, in Norway **the location in which toll revenue is collected can differ from that of the infrastructure to be funded**⁷.

In terms of advantages, it should also be noted that **a toll system complies with the principle of territoriality, as users of the infrastructure pay for its utilisation without differentiation according to nationality**⁸.

Furthermore, **a toll system can serve to optimise utilisation of the transport network (traffic spread, inter-modal sharing of traffic load, etc.)**. However, in this case, charge systems must meet a number of different objectives, which can indeed be contradictory (marginal cost charging, cost recovery, maximised profit, etc.).

Toll system disadvantages

Apart from problems of acceptability (see below), it should also be noted that **introduction of a toll system generally results in reduced socio-economic return for the project (except in the case where there is a congestion problem) as a certain proportion of users are dissuaded from continued utilisation of the infrastructure**⁹. Furthermore, introduction of a toll system for an infrastructure induces additional costs, relating to the construction, maintenance and operation of toll collection facilities. For example, it is estimated that a mean figure of about 10% of revenue is absorbed by toll collection. The frequently quoted problem of a toll system, which raises the question, in more general terms, of the application of a revenue source, could also be mentioned. Application of revenue frequently escapes any form of democratic control, and also represents an obstacle to the optimised distribution of funding resources. This can lead to a situation where feasibility is emphasised to the detriment of the public interest.

⁷ For example in the case of Oslo, the toll is collected at the point where the ring-road is crossed, and is used to fund adjacent tunnels.

⁸ See Council directive 93-89 of 25/10/1993, which establishes the legal basis for toll collection and utilisation rights at E.C. level.

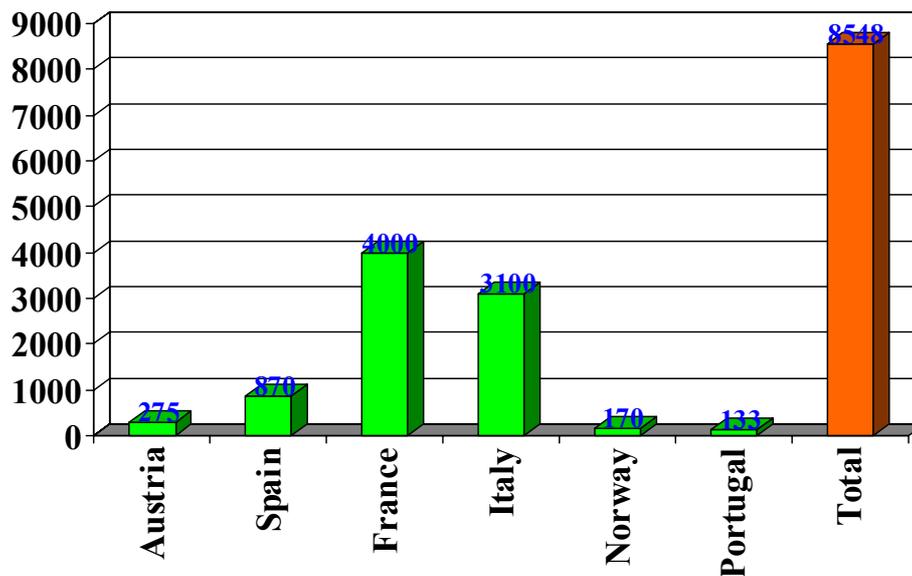
⁹ Under conditions of saturation, the toll system is used to spread demand and thus enhance the collective balance.

Application of toll revenue in Europe

Toll revenue from European motorway infrastructures is substantial and represented about 8.6 billion ECU in 1996, as shown in the following table.

Annual toll revenue in Europe

Country	Annual toll revenue (million ECU)
Austria	275
France	4,000
Greece	
Italy	3,100
Norway	170
Portugal	133
Spain	870
Total	8,548



Annual Toll Revenue in Europe
(million Euros)

It is nevertheless necessary to **situate these amounts in a proper perspective, insofar as they are substantially below actual needs, and only constitute a minority proportion of road investments.**

In an EC context, mention should be made of directive 93/89/CEE, which established a framework for rules concerning vehicle taxes, as also tolls and fees collected for heavy goods vehicles exceeding 12 tonnes using road infrastructures. Fees are currently capped at 1,250 Euro per year. Article 7h of the directive establishes that **"toll rates are linked to the construction, operating and development costs of the infrastructure network concerned"**¹⁰. However directive 93/89 contains no pointers regarding the eventual application of toll revenue, merely defining the principle for its calculation.

I.1.2. Toll system functions

A distinction must be made between the different functions of a toll system. These principally concern funding and channelling of demand, functions which in themselves can be contradictory.

Analysis of the replies received to the questionnaire issued to all European road administrations shows **that toll systems in all European countries, apart from the Netherlands, provide funding for the construction and maintenance of the road infrastructure in an inter-urban context, but no traffic regulation function.** In the Netherlands, the toll system is designed to direct road users towards other means of transport. This means that the primary objective in this country is to control road user behaviour, firstly in order to ease road traffic conditions, and secondly to encourage the use of means of transport such as the railways and inland waterways. Norway recently decided to allocate part of toll revenue collected in Oslo and Trondheim to funding public transport and cycle lanes. These experiments are nevertheless limited to the urban context.

I.1.3. Acceptability of toll systems in Europe

The problem of the social acceptability of toll systems must be examined with care in any case where an infrastructure is to be placed under toll. The replies received from the European road administrations indicate that the acceptability of a toll system in an inter-urban context is, in practice, mainly dependent on the five factors examined below.

¹⁰ At the request of the European Parliament, this directive was rescinded by the EC Court of Justice in July 1995, for non-compliance with the European Parliament consultation procedure. **The effects of the directive are maintained**, but the Council of Ministers has been requested to adopt a new directive within a "reasonable time".

a. Toll charges

Toll charges vary throughout Europe because they are linked to the socio-economic conditions in the countries concerned, and the extent of construction work required for the concession infrastructure. Toll charges for private vehicles for open country sections vary from about FF 0.30/km in Italy and an average of FF 0.40/km in France and Spain (since the law of 30/12/1996), down to FF 0.10/km in Greece. Generally, **heavy goods vehicle toll charges are two to three times higher than those for private cars** (example, factors of 2.5 in Portugal, between 2 and 2.5 in Spain and 3 in Italy). At all events we should not consider the aspect of an identical mean toll level for all segments of transport demand alone, as a toll system for which charges depend on the degree of usefulness to the user can also be adopted. Furthermore, reasoning along these lines leads to higher toll rates for long distances (for which the degree of elasticity is generally lower than for short distances).

b. Toll collection methods

Toll collection methods have an influence on the degree of acceptability of the toll by the user. As regards electronic toll collection, the principal technologies under consideration in Europe are dedicated short-range systems on the one hand, where an on-board unit communicates with equipment installed at the roadside, and satellite positioning and navigation systems and GSM, where the on-board unit communicates with a satellite on the other. In both cases, care should be taken to ensure that **the user recognises the service provided by the electronic collection system, and that the cost of the toll and the technology applied do not create additional difficulties by comparison with manual collection** (in particular by reason of the constraints associated with the protection of privacy).

The progressive introduction of electronic toll collection is also a factor which has an impact on user acceptability of a toll system. The generalised, simultaneous introduction of a toll system on a complete network represents a major political risk. In this case, any malfunction, whether technical (system failure) or "managerial" (commercial and management errors affecting user accounts) would have an insurmountable negative impact on the acceptability of the network toll system. From this point of view, **progressive introduction**, with initial selection of certain infrastructures and/or user categories, reduces this risk to a substantial extent. It should also be noted that the introduction of a toll system for a road infrastructure can only be considered on the basis of an electronic toll collection system in certain countries. This is the case in Germany in particular, where it is not possible to construct toll stations, due to the high motorway density and the fact that the majority of motorways transit via high population density areas, with the consequent necessity of using automatic payment systems for toll collection from the outset.

The recommendations of the European Commission regarding electronic toll collection in Europe, perceived in practical terms as one of the best solutions to the problems of charging road users, and one towards which all Member States are encouraged to move, is summarised briefly in the following box.

European Commission recommendations concerning electronic toll collection in Europe

The main priority for the European Commission is the selection of a charge system for heavy goods vehicles, insofar as the sector concerned is clearly international in nature, and as this traffic is extremely important for the development of the single market. The establishment of an EC system for heavy goods vehicle charges will represent a major step forward in the implementation of the charging principles proposed. The system should be designed to be compatible with systems for urban road charges established by municipal and regional authorities. The introduction of an electronic toll collection system for trucks can thus be regarded as the entirely logical sequel to the current system based on the "Eurovignette". To promote this change, it will be necessary for the EC legislation concerned to include a standard electronic toll collection option. This will nevertheless require analysis of technical and harmonisation aspects, as also administrative questions, in greater depth.

Source: European Commission white paper COM (98)466 final dated 22 July 1998

c. The toll system: the necessary counterpart of a user service which must be recognised by the user

A toll system is only accepted insofar as it is associated with an advantage regarded as satisfactory by the user. In this sense, the acceptability of a funding source toll system in an inter-urban context is globally greater than that for decongestion and traffic management type toll systems, the usefulness of which is less easily perceptible by road users, and is even regarded as paradoxical since charges are inversely proportional to the quality of service. Information, and its communication to users naturally has a direct impact on the acceptability of a toll system, as illustrated by experience in France as described in the box below.

Experience with modulation of motorway toll charges in France

Various types of toll charge modulation have been tried out on the French motorways, the aim being to regulate traffic flow by means of the toll system. Results have generally been encouraging. Distinction can be made between two categories of modulation:

- **time** modulation, where the principle is to adjust toll rates by time segment, in order to cap peak traffic levels and spread returning weekend traffic. SANEF introduced two "green" periods (toll reduced by 25%), and one "red" period (toll increased by 25%) on motorway A1 in April 1992. With a toll difference of 50% between peak and off-peak periods, approximately 10% of motorists who previously used the motorway in the peak periods have altered their travel times (corresponding to an average of 2,000 vehicles per day for the "red" toll period). .../...

Other experiments are being conducted by AREA in the Rhône-Alpes region, and COFIROUTE on motorways A10 and A11. The results of these experiments are regarded as positive (8 to 10% of peak traffic has been shifted, on the basis of a 60% peak/off-peak toll variance).

- **space modulation**, also aimed at capping peak traffic levels on certain motorways, by rerouting outward and returning holiday and weekend traffic onto alternative itineraries subject to toll reductions, and increasing toll on the saturated motorway. This type of space modulation has been applied by SANEF and SAPRR on motorways A1-A26 and A5-A6, and has produced satisfactory results (approximately 10% shift).

Conclusion: The aim of these experiments was to achieve a neutral net impact on revenue (offsetting toll reductions by increases). **It was found that the most decisive factor in the modification of road user behaviour was communication, followed by toll charge modulation.**

Source: French Directorate of Roads, 1998.

d. Eventual presence of toll-free itineraries

The presence of a toll-free itinerary parallel to a section under toll has a significant modifying impact on the notion of toll system acceptability. A number of countries have opted for DBFO (Design, Build, Finance and Operate) type systems with "shadow" tolls, in particular in cases where there is no alternative toll-free route. **Where such a toll-free route exists, it is important for the public authority to ensure that the sections under toll present a genuine advantage for the user (time saving, increased comfort and safety, etc.). Any modification or improvement of alternative routes must be examined in such a way that the toll acceptance of the user is not placed in doubt.** The increasing mesh density of motorway systems in countries operating toll systems also induces difficulties in this context.

e. The existence of taxes associated with the road sector has a major impact on the acceptability of a toll system

The acceptability of toll systems on the Great Belt and Orensud links in Denmark is satisfactory, as both these road sections provide alternatives to ferries. Nevertheless, there are no plans at the present time place other road sections under toll in Denmark. Given the high level of vehicle and motor spirit taxes, the acceptability of toll systems is generally regarded as low. **The acceptance of toll systems in Finland is generally low for the same reasons.** This argument also predominates in the US, where road users are fully aware that motor spirit taxes are allocated to the Highway Trust Fund.

Inter-urban tolls in Norway are relatively well accepted, as they make a significant contribution to reducing transit time both for private vehicles and road carriers. The situation is substantially different in the urban context, where tolls

are regarded as a new tax, identical to those collected for the national budget. Recent studies in Norway indicate that while a majority of users are currently opposed to toll collection on the periphery of towns, this proportion is tending to diminish with the passage of time.¹¹

In Spain, the acceptability of toll systems is poor at the present time, due to the development of a 5,000 km toll-free motorway network ("autovias"). It is also intended to extend the toll-free motorway construction programme in the future.

In the Netherlands, tolls are accepted where applied to clearly-defined, limited road sections (bridges and tunnels). A toll system would probably not be accepted for the complete road network.

In France, toll systems are generally well accepted in the inter-urban context, being regarded as a source of revenue for the construction, maintenance and operation of a good-quality motorway infrastructure network. On the other hand, the social acceptability of toll systems in the urban context has induced a number of difficulties in the last few years (in Lyon and Toulouse in particular). It also appears that the nature of the concession company (state-owned or private) can also have an impact on toll system acceptability.

I.2 SHADOW TOLL CONCESSION

I.2.1. Definition

A shadow toll contract enables the public authority to delegate the construction and funding of an infrastructure to a concession company. In this case, the concession company collects no toll from the users, for whom the infrastructure is free. The public authority remunerates the concession company, remuneration being based principally on the degree of utilisation of the infrastructure. This type of system consequently involves counting the number of users, and paying the concession company on a pro rata basis according to this number applying a pre-established scale. Payment by the public authority takes account not only of the traffic levels measured, but also the performance the concession company. This performance can be gauged in different ways, for example according to the number of lanes closed to traffic (and the time taken to execute repair work), or the measures taken by the concession holder to increase road safety.

I.2.2. Shadow toll practice in Europe

The DBFO method was first introduced in the **United Kingdom**, but is now also applied in **Finland**, where the Parliament has authorised application of a shadow toll system for a 70-km section between Jarvenpaa and Lahti. A shadow toll system is also being examined in **Portugal** for an 800km road project. It was decided to adopt the shadow toll method in Finland by reason of existing high motor spirit and road tax and customs duties, and the level of traffic using the infrastructure in question (regarded as too low to justify introduction of a toll system).
examined in **Portugal** for an 800km road project. It was decided to adopt the shadow toll method in Finland by reason of existing high motor spirit and road tax and customs duties, and the level of traffic using the infrastructure in question (regarded as too low to justify introduction of a toll system).

¹¹ Road toll systems have been introduced in three towns: Bergen (1986), Oslo (1990) and Trondheim (1991).

The Netherlands have adopted a special private project funding scheme for the construction of tunnels in the western part of the country. The objective is to construct a larger number of tunnels than would be possible using budget sources alone. The "Noord" tunnel was the first for which private funding was adopted. This tunnel has extended an existing bridge link on the second main route from Rotterdam to the Ruhr in Germany. Preparation for the "Noord" tunnel was completed by the Dutch State Public Works Department prior to the governmental decision. Construction and maintenance are covered by the State departments, on the basis of a lump-sum of FI 3.1 million for maintenance and operation over 30 years. This means that any increase in construction, maintenance and operating costs is borne by the State. The concession company provided the funds, **and will continue as owner of the tunnel for thirty years, receiving remuneration for the investment according to the number of vehicles using the tunnel, and the agreed tunnel fee.** The "Noord" tunnel has been in service since 1992. It should also be noted that concession systems are currently under review in the Netherlands following this experiment, which has been criticised mainly because of the excessively high transaction costs involved.

There are no plans to adopt shadow toll methods for the national network in Spain, although certain regional authorities have expressed interest in this solution. The first application of a shadow toll system in Spain could be initiated by the Madrid municipal authority on highway M45. The Spanish emphasise that the advantage of this method is the avoidance of any dissuasion effect on an infrastructure under toll.

Greece is not using a shadow toll system, although this could be considered in one or two cases in the future, where anticipated traffic levels are regarded as too low (resulting in a lack of interest on the part of the private sector, unless subsidies, regarded as excessive, are applied).

I.2.3. Advantages and disadvantages of shadow tolls

The advantages and disadvantages of the DBFO/shadow toll method can be gauged by comparison with other types of funding, namely budgetary and toll oncession funding.

The advantages of road funding by means of a shadow toll system, compared with toll concession funding are as follows:

- **there is no tendency to shift traffic onto other roads.** In the case of a motorway infrastructure under toll, a certain number of users avoid the motorway both because of the toll cost, and the distance between access points (the mean distance between

- access points in France is 11 km, although this rises to 20 km in open country, and even more on certain new links carrying limited traffic);
- **no expenses associated with toll collection are incurred** (it is estimated that between 10 and 15%¹² of revenue are absorbed by toll collection costs, while approximately 10% of the initial cost of the infrastructure represents construction of the toll stations).

The main advantages of a conventional toll concession contract, namely optimisation of the infrastructure with the risks and interim funding carried by the concession company, are maintained with a shadow toll system. Furthermore, the latter type of system ensures that provision is made for road maintenance, both in financial and personnel terms. The spreading of **financial charges over a period of time makes it possible to attenuate the constraints of annual programming.**

Nevertheless, a shadow toll system does not solve the funding problem, as the concession authority must pay shadow toll remuneration to the concession company in due course. A shadow toll contracts does not therefore generate new funding sources. Such an arrangement makes it possible to shift responsibility for the financial package onto the concession company (so that the debt is non-public), but the final cost must be borne by the tax-payer ("delayed" budgetary funding), and not the user. The financial and legal costs of this type of arrangement can be high, and should not be underestimated. By comparison with budgetary funding, the shadow toll method also highlights an apparent increase in financial expenses (due principally to the return on invested capital required).

British DBFO practice

The British road system has a total length of 280,136 km, classified in four categories. These are motorways, other trunk roads (10,384 km), other principal roads and other roads. The motorways and other trunk roads are placed under the direct responsibility of the Ministry (Transport Department), and are managed by the British Highway Agency, created in April 1994. Other roads are placed under county council and municipal authority.

The State is involved in partial disengagement from its role as transport infrastructure investment promoter in favour of the private sector, regarded as more efficient in this context. State disengagement is being implemented within the framework of the Private Finance Initiative (PFI), which provides for DBFO type concessions in the road sector. The aim is to shift total responsibility for the project (studies, funding, construction and operation) to the private sector.

Three work phases, representing fourteen projects or some forty operations, estimated at £1.1 billion involve shadow toll arrangements. **Eight projects have already been initiated (580 km).** The A13-Thames Gateway project is in course of preparation (having reached the pre-qualification stage in April 1998). **The initial phase for these projects were awarded in 1996, and were costed by the British National Audit Office in January 1998.**

¹² For example, toll collection costs in Norway represent an average of 17% of toll revenue.

.../...

The logic behind this policy is not essentially of a financial nature. The aim is not to shift the weight of investment to the user, but rather to oblige contractors to carry certain risks normally assumed by the State. The principle is based on the assumption that a contractor must be able to construct more efficiently and at lower cost than a public administration, and the fact that a toll system would not be well received by the general public (there are no road tolls in the United Kingdom, apart from those for a number of tunnels and bridges). The State remunerates the concession company, in place of the user, on a commercial basis according to a vehicle/mile rate, which assumes the existence of a sophisticated metering system.

Mention should also be made of the first urban project for which a shadow toll contract is planned, this being the extension of highway A13 to the east of London. This project amounts to FF 1.46 billion (30-year concession, with work scheduled to commence in August 1999).

In a recent evaluation report on the first DBFO project phase in the UK¹³, the National Audit Office emphasised the following points:

- **compared with conventional contract placement methods (budgetary funding), two DBFO projects out of four produced major savings** (30% for the M1-A1 project, and 25% for A1(M)). **These two projects include a substantial construction component** (whereas the other two principally involve maintenance work);
- **the advantage of the DBFO type method is to be found principally in the freedom as regards design which is left to the concession company, the transfer of risks to the latter, and the enhanced efficiency resulting from private management. Without these three conditions, the DBFO method would have no advantage over budgetary funding, and would cost more (more substantial financial expenses, stemming in particular from the required return on invested capital);**
- by comparison with a conventional contract placement method, the DBFO process requires more time, and involves much higher transaction costs.

It should also be noted that **the negotiated contract technique, which is subject to prior announcement (Public Works Contract Regulation 1991), is used in the UK for the award of DBFO type contracts.**

¹³ National Audit Office. *The Private Finance Initiative : The First Four Design, Build, Finance and Operate Roads Contracts*, January 28, 1998.

I.3. INITIAL CONCLUSIONS CONCERNING THE ROAD INFRASTRUCTURE CONCESSION APPROACH IN EUROPE

I.3.1. CONCESSION APPROACH AND REMUNERATION OF THE CONCESSION COMPANY

The first point which emerges from examination of the various motorway concession contracts set up in Europe, is that **the toll system is not intrinsically linked to the concession approach**. The concession company can be remunerated under the terms of a lease, while also applying incentive measures. In this case the concession company collects toll on behalf of the State, paying over the total toll revenue collected. This system involves a different form of risk sharing, in particular as regards the commercial risk associated with toll charges and traffic levels. **On the other hand, a toll system can be operated without a concession**, as demonstrated by the Norwegian examples mentioned above, where the operators are not concession companies, but commercial companies operating toll systems and having a principally financial role (construction, maintenance and operation being the responsibility of the State¹⁴).

The methods employed for remuneration of the concession company and the ownership of the infrastructure, although important in absolute terms, do not appear as basic aspects of the concession contract. The notions of contract globality, transfer of responsibility and risk-sharing between the public authority and the concession company, appear to be of substantially greater importance for qualification of the agreement as a concession.

I.3.2. Widely varying road infrastructure practice in Europe

The following table summarises the various concession methods applied in the road sector in Europe, indicating the following for each country:

- experience in terms of road concessions at both local and national levels,
- type of concession contract used (user-based or shadow toll remuneration),
- legal form of the concession companies (state-owned or private),
- national legislation relating to concessions (where this exists), and
- mean concession periods.

This table demonstrates that **the term "concession" is used to cover real situations which can be substantially different**. Analysis of the various examples in Europe shows that a **"concession" contract is no more than a work management contract in certain cases**. **The first task is therefore to examine how the various risks are shared between the public authority and the enterprise, and the scope of the contract both in terms of its purpose (work,**

¹⁴ The Norwegian toll companies are set up by local authorities, which then guarantee loans to these companies.

services, etc.) and its duration. To obtain a clearer picture, we will briefly examine three examples from three different European countries. In the Netherlands, the "Noord" tunnel concession did not involve execution of the work by the concession company, although the latter was responsible for the financial investment cost and commercial risk. In Italy (although France, Spain and Portugal also provide similar examples), a concession contract involves complete execution of the work by the concession company (acting as prime contractor and subcontracting the work), and partial transfer of risks from the State to the concession company, the latter being remunerated in the form of toll revenue. In the United Kingdom, risk-sharing is substantially different from the situation in Italy and the Netherlands, and the concession company is remunerated not by the user but the public authority. In conclusion, **the method of execution of a contract is more important than its actual designation.** The key elements of a concession contract are examined in more detail in the second part of this report.

The table below indicates the total length of the motorway system under concession in each country, indicating whether the concession companies are private or state-owned. This latter aspect (state-owned or private) will be examined in greater detail in section I.3.5., but the following figures can already be noted: **out of a total of 51,242 km of motorway in Europe, 17,009 km, or one-third of the complete motorway network, are under concession.** This percentage reflects European experience in the concession domain.

EUROPEAN PRACTICE OF HIGHWAY CONCESSION (km in operation, 01-01-98)

	Motorway network	Motorway network under concession	Concessionaire companies			
			public (km) ^d	private (km)	Nr. of public ^d	Nr. of private
Germany	11200	0	0	0	0	0
U.K.	3300	580	0	580	0	3
Austria	2000	180	180	0	1	0
Belgium	1800	1,5	1,5	0	1	0
Denmark	830	0	0	0	0	0
Spain	8200	2255	405	1850	3 ^c	14
Finland	394	69	0	69	0	1
France	8923 ^a	6705	5905	800	8 ^b	1
Greece	400	75	0	75	0	1
Italy	6500	5600	5420	180	26 ^b	1
Luxembourg	130	0	0	0	0	0
Norway	550	550 ^e	550	0	26	0
Netherlands	2300	4	0	4	0	2
Portugal	1422	990	0	990	0	2 ^f
Sweden	1437	0	0	0	0	0
Switzerland	1856	0	0	0	0	0
TOTAL	51242	17009,5	12461,5	4548	63	25

Notes :

a. including 997 km of urban motorways

b. Figures including two international tunnel companies

c. The three public companies (AUCALSA, AUDASA et AUDENASA) merged into a holding : ENAUSA

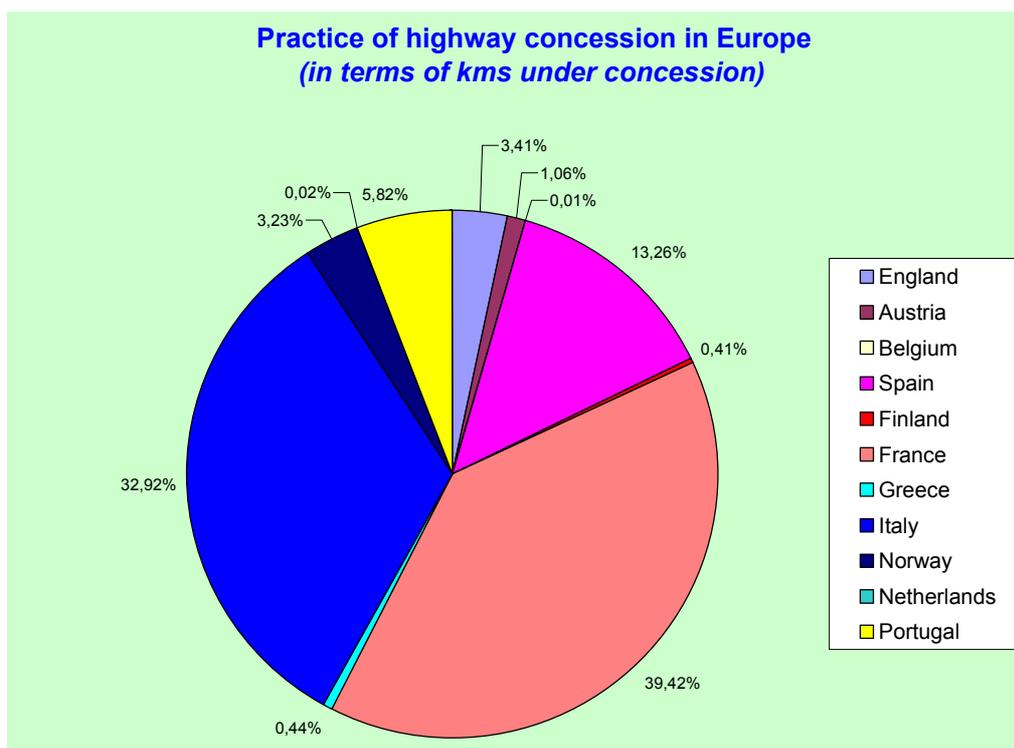
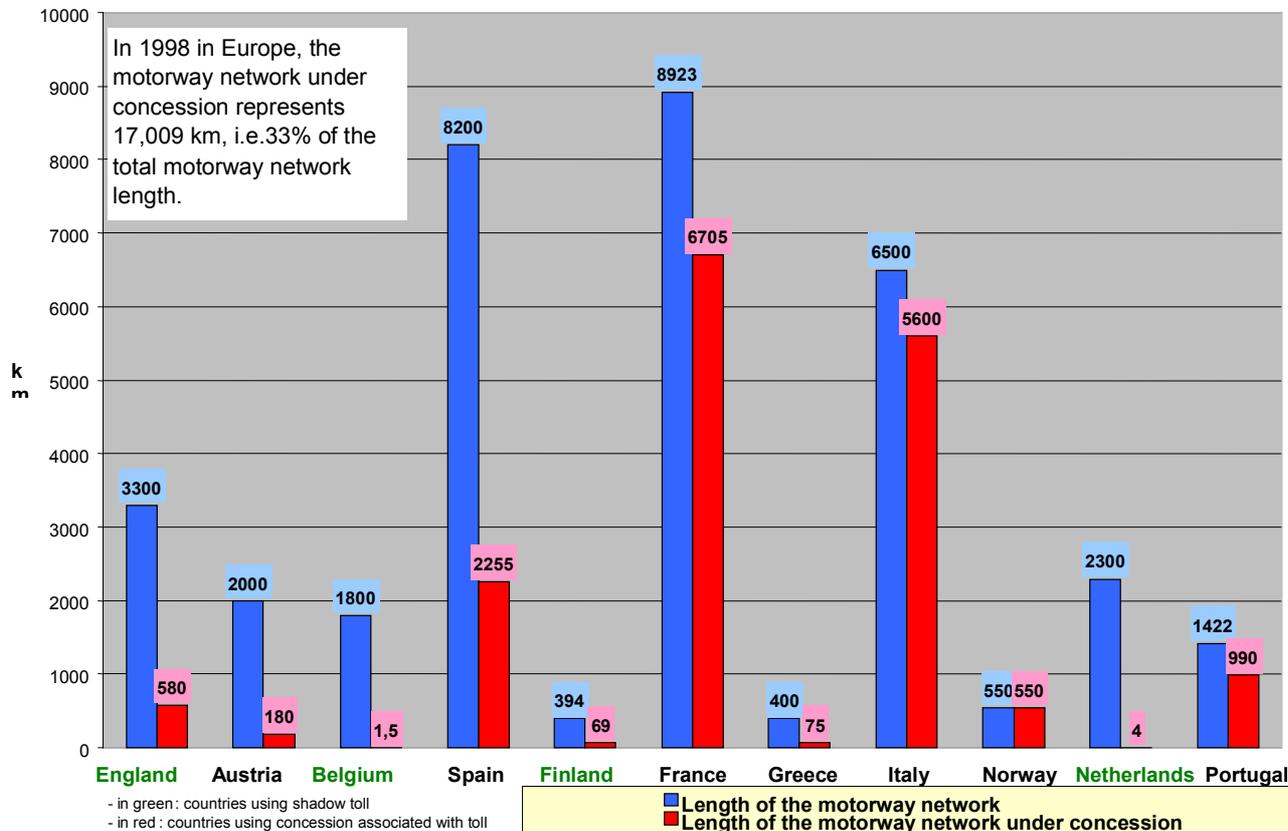
d. Public means : "company held at more than 50% by the State and/or local collectivities"

e. Norway has 26 concessionaire companies (35 toll roads in Norway, 50 km of tolled road belts, 70 km of bridges and 73 km of tunnels). The term "concession" is used although the companies have mainly a role of collecting tolls from road users.

f. The two concessionaire companies are the result of the privatization of BRISA (966km) and Lusoponte (operating two 24 km long bridges).

The figure of 33% does not however mask the disparity, in terms of concession contracts, between different European countries. As will be seen from the following graphs, France, Italy and Spain account for 86% of the total length of motorway under concession.

European countries using the concession system in Europe



ROAD INFRASTRUCTURE CONCESSION PRACTICE IN EUROPE

(Table based on replies to a questionnaire issued to national road administrations)

COUNTRY	MAIN /STEMS FOR NATIONAL HIGHWAY/MOTORWAY NETWORK	FUNDING	HIGHWAY/MOTORWAY NETWORK UNDER TOLL CONCESSION	HIGHWAY/MOTORWAY NETWORK UNDER TOLL CONCESSION	MEAN CONCESSION PERIOD	NATIONAL LEGISLATION RELATING TO CONCESSIONS	NATURE OF CONCESSION COMPANIES (PRIVATE/STATE)
GERMANY	Budget, and interim funding method (in budget in all cases) ¹	Two local projects (not central government): (1) Warnow tunnel (B103) in Rostock (contract signed in 1996), and (2) Lubeck tunnel (B75/B104). The Ministry of Transport drew up a list of 17 projects suitable for implementation under the terms of the 1994 law on private funding, on 26/02/97. 12 projects (83 km, for an amount of DM 4.6 billion) should be funded in this way.	Two local projects (not central government): (1) Warnow tunnel (B103) in Rostock (contract signed in 1996), and (2) Lubeck tunnel (B75/B104). The Ministry of Transport drew up a list of 17 projects suitable for implementation under the terms of the 1994 law on private funding, on 26/02/97. 12 projects (83 km, for an amount of DM 4.6 billion) should be funded in this way.	- No shadow toll systems in Germany. Mention should be made however of the interim funding method (as distinct from a concession), whereby a private operator is retained to fund and execute the work. On completion of the project, the public authority reimburses the private company for the cost of funding and the work itself, by annual payments agreed in advance. The reimbursement period usually adopted is 15 years.	-	Law of 30/08/94 concerning the private funding of federal highways, authorising private toll concessions for bridges and national highways	- A private concession company (Bouygues) has been selected for the Warnow tunnel (B103) in Rostock.
UNITED KINGDOM	Budget Shadow toll	Only bridges are under toll (Queen Elizabeth II in Dartford, Second Severn Crossing, etc.). Birmingham Northern Relief Road (project stage) will be the first highway section under toll in the U.K.	Only bridges are under toll (Queen Elizabeth II in Dartford, Second Severn Crossing, etc.). Birmingham Northern Relief Road (project stage) will be the first highway section under toll in the U.K.	The DBFO (shadow toll) type concession is the most frequent form of motorway concession in the U.K. (580 km). Eight DBFO type projects have already been initiated, representing 800 million Euro (£550 million). The A13-Thames Gateway project is in course of preparation.	30 years	"Public works contract Regulation 1991", establishing the procedure for negotiated contracts	Three private consortia (Road Management Group, Yorkshire Link and Road Link) have been selected for the first three DBFO type concessions

AUSTRIA	Budget Toll ¹	7% of the motorway and high-speed highway network is under toll (180 km) for all vehicles	ASFINAG , incorporated on 11/12/97. ASFINAG has taken over two public concession companies, Alpenstrassen AG and Osterreichischen Autobahnen und Schnellstrassen AG (Ossag). ASFINAG has therefore taken over the State debt (approx. 5.6 billion ECU). ASFINAG took over responsibility for an existing network (95% completed).		Law of 1996 concerning the funding of federal highways. Adoption of a law covering of road infrastructure projects in September 1997.	ASFINAG is a state-owned company (100%).
COUNTRY	MAIN FUNDING /STEMS FOR NATIONAL HIGHWAY/MOTORWAY NETWORK	HIGHWAY/MOTORWAY NETWORK UNDER TOLL CONCESSION	HIGHWAY/MOTORWAY NETWORK UNDER TOLL CONCESSION	MEAN CONCES SION PERIOD	NATIONAL LEGISLATION RELATING TO CONCESSIONS	NATURE OF CONCESSION COMPANIES (PRIVATE/STATE)
BELGIUM (FLEMISH PART)	Road fund	Liefkenshoek tunnel in Antwerp (contract signed on 03/10/95).		Two years (as from 10/07/91) and 4 years' construction.		The Belgian (Flemish region) authority now owns the SA Tunnel Liefkenshoek company, previously owned by the contractors.
DENMARK	Budget ¹	- Great Belt Link Sealand and Funen, length 18 km (opened to traffic on 14/06/98). - Oresund Link between Denmark and Sweden (opening to traffic scheduled for 2000), 16 km long. These two toll projects do not form part of the national road system.		Operating period not limited in time.		- The concession company for the Great Belt Link is A/S Storebaeltsforbindelsen (state-owned company). - The concession company for Oresund is Oresundskonsortiet, (50% Danish State, 50% Swedish State).

SPAIN	Budget Toll	1998: 2,255 km of motorway under toll, of which 1,875 km under State concession, and 380 km under provincial concession.	<ul style="list-style-type: none"> No plans to use shadow toll methods at national level. This method is under consideration at regional level (Madrid municipal authority for M-45), particular. 	Maximum concession period extended from 50 to 75 years by the law of 30/12/96.	<ul style="list-style-type: none"> Law No. 8/1972 of 10/05/72, authorising concessions. A royal decree is required to approve a concession. Law No. 13-1996 of 30/12/96, setting up measures for the funding of toll motorways. 	17 concession companies (3 state-owned and 14 private).
COUNTRY	MAIN FUNDING SYSTEMS FOR NATIONAL HIGHWAY/MOTORWAY NETWORK	HIGHWAY/MOTORWAY NETWORK UNDER TOLL CONCESSION	HIGHWAY/MOTORWAY NETWORK UNDER SHADOW TOLL CONCESSION	MEAN CONCESSION PERIOD	NATIONAL LEGISLATION RELATING TO CONCESSIONS	NATURE OF CONCESSION COMPANIES (PRIVATE/STATE)
FINLAND	Budget Shadow toll	No toll	<ul style="list-style-type: none"> Shadow toll system used for 69 km section between Jarvenpaa and Lahti (to be opened end 1999). Shadow toll also planned for rehabilitation of Porvoo-loviisa section. 	Min. 15 years		The concession company is a private consortium, Road Company Nelostie Oy (Hyder Investments, Skanska, Elake-Varma and Teollisuusvakuutus)

FRANCE	State budget Toll Territorial authorities FITTVN (special allocation account)	6,500 km of motorway under toll concession, representing 85% of national motorway network.	No shadow toll	Mean concessi on period: 30 years	- General law of 1955 - Law No. 93- 122 of 29/01/93 ("Sapin law") and correspond- ing orders in council - One private company: COFIROUTE	Three semi-public concession company groups since 1994: - SANEF and SAPN - SAPRR and AREA - ASF and ESCOTA - Two international tunnel and motorway companies (ATMB and SFTRF)
GREECE	Budget Toll	Experience with concessions for bridges and urban highway sections: Concession contract for ESSI (Elefsina-Stavros- Spata Airport Motorway and Western Imittos Peripheral Motorway), 65 km, signed on 23/05/96. Concession contract for Rion-Antirion bridge, 3.5 km, signed on 03/01/96.	Two projects for utilisation of shadow toll method at planning stage.		The concession company for the ESSI project is Attiki ODOS. The shareholders are Greek public works companies and Transroute. The Rion-Antirion bridge is under concession to GEFYRA. The shareholders are GTM (55%) and six Greek construction companies (45%).	The concession company for the ESSI project is Attiki ODOS. The shareholders are Greek public works companies and Transroute. The Rion-Antirion bridge is under concession to GEFYRA. The shareholders are GTM (55%) and six Greek construction companies (45%).
COUNTRY	MAIN FUNDING SYSTEMS FOR NATIONAL HIGHWAY/MOTORWAY NETWORK	HIGHWAY/ NETWORK UNDER TOLL CONCESSION	HIGHWAY/ MOTORWAY NETWORK UNDER SHADOW TOLL CONCESSION	MEAN CONCES SION PERIOD	NATIONAL LEGISLATION RELATING TO CONCESSIONS	NATURE OF CONCESSION COMPANIES (PRIVATE/STATE)

ITALY	Budget Toll	5,600 km of motorway under toll, or approx. 86% of the Italian motorway network (ANAS also manages 900 km of motorway which are still not under toll). The toll motorways are principally concentrated in the centre of northern Italy.	No shadow toll in Italy	30 years (article 2 of law 729/61)	<ul style="list-style-type: none"> - Law 537 of 24/12/1993 - Law 498 of 1992 - Law 531 of 12/08/82 - Law 385 of 28/03/68 - Law 729 of 1961 - Law 463 of 1955 	<p>27 motorway concession companies:</p> <ul style="list-style-type: none"> - 6 companies belonging, directly or indirectly to IRI (Institute for Industrial Reconstruction, under the aegis of the Treasury Ministry), of which Autostrade. These companies manage 3,115 km (56% of total). - 15 companies in which the main shareholders are local state-owned enterprises, which manage 2,300 km. - 1 entirely private company (Torino-Milano), managing 127 km. - 3 tunnel concession companies.
LUXEMBOURG	Budget ¹ Road fund	-	-	-	-	-
COUNTRY	MAIN /STEMS FOR NATIONAL GHWAY/MOTORWAY ETWORK	HIGHWAY/MOTORWAY NETWORK UNDER CONCESSION	HIGHWAY/MOTORWAY NETWORK SHADOW CONCESSION	MEAN CONCES SION PERIOD	NATIONAL LEGISLATION RELATING TO CONCESSIONS	NATURE OF CONCESSION COMPANIES (PRIVATE/STATE)

NETHERLANDS	National infrastructure fund ¹	No highway sections under toll	Shadow toll method used for two tunnels: : - Noord tunnel (commissioned in 1992); length 2 km - Wijkertunnel (on A22 to the west of Amsterdam); length 2 km Construction and maintenance are the responsibility of the State (Rijkswaterstaat), acting on behalf of the private investor. The latter consequently only bears traffic risks, insofar as technical risks are borne by the State. This is not therefore the same shadow toll method as used in the U.K. and Finland.	30 years	Two private concession companies for the Noord tunnel and the Wijkertunnel.
PORTUGAL	Budget Toll Shadow toll (in course of preparation)	966 km	Shadow toll method in course of preparation for 779 km of highways.	30 years	The two concession companies are the result of privatisation of BRISA (966 km) and Lusoponte (which manages two bridges with a total length of 24 km). - Shadow toll sections: Concessooes Scut.
SWEDEN	Budget	No toll roads			
SWITZERLAND	Budget	No toll roads		-	-

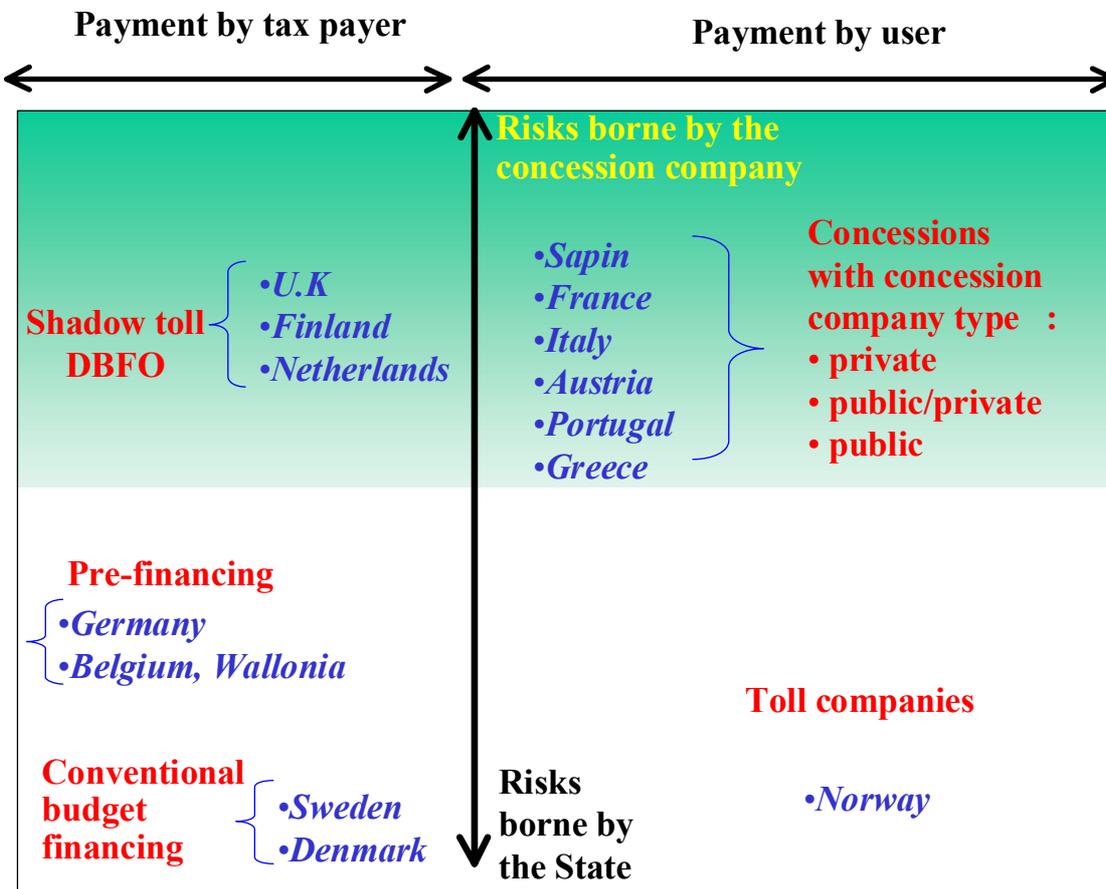
NOTE.: 1. Germany, Denmark, the Netherlands, Belgium and Luxembourg have introduced a common temporary road tax vignette, to authorise utilisation of their motorway networks by heavy goods vehicles exceeding 12 tonnes. This right of use fee is capped at 1,250 ECU per year. Austria introduced a motorway road tax vignette covering 1,720 km of its motorway and expressway network on 01/01/97, for private vehicles and trucks of less than 12 tonnes. Heavy goods vehicles exceeding 12 tonnes must also pay a road tax, the amount of which is capped by directive 93-89 (max. 1,250 ECU per annum). This road tax is supposed to be temporary, pending introduction of an electronic toll collection system, initially for heavy goods vehicles and later for all vehicles.
SOURCE: Replies to questionnaire issued to DERD in April 1998.

I.3.3. concession contracts compared with other infrastructure funding systems

Following our analysis of replies to the questionnaire sent out to the national road administrations in Europe, it is interesting to compare the concession option with other types of road funding system.

The diagram below compares the position of a concession contract with the other types of funding used in Europe (national budget, private interim funding, etc.), on the basis of two criteria, payment by the user or tax-payer, and the sharing of commercial risks. The diagram also indicates the solution adopted in each country. In common with any form of typology, this classification has a naturally simplifying effect, but does provide an overview of numerous types of road funding in Europe. Three conclusions can be drawn from this diagram:

- the main criteria for an approach to a road infrastructure concession are the globality of the contract, and the sharing of risks between the concession authority and concession company;
- payment by the user is not a decisive criterion for qualifying a concession contract as such, or not;
- there is a borderline zone (displayed in pale green) where no genuine unanimity exists concerning the nature of a concession contract (example: shadow toll arrangement where the risks carried by the concession company are substantially limited).



ORGANIZATIONAL AND FINANCIAL INSTRUMENTS IN THE EUROPEAN ROAD SECTOR¹

TYPE OF INSTRUMENTS	ADVANTAGES	DISADVANTAGES	Countries ²
CONCESSIONS³	<ul style="list-style-type: none"> - Financing of road network construction, maintenance and operation - Channelling/Traffic control - Technical innovation made easier - No discrimination between nationals and foreigners who are involved in financing (for classical concessions) - Transfer of some risks from State to concessionaire - Greater efficiency in project execution - Greater flexibility in project management - Leverage effect of loan - User pays principle (classical concessions) - Earmarking resources (only for classical concessions) 	<ul style="list-style-type: none"> - Resources may be inadequate for needs - 10 to 15% of income tied up for toll collection - Necessity for a real partnership between public and private sectors (so as not to leave too many risks for the private sector) - Private sector financing costs more - Traffic-related uncertainty: classical concession system alienates a number of users 	<p>Spain France Italy Norway⁵ Portugal</p>
	<ul style="list-style-type: none"> - Greater efficiency in project execution - Leverage effect of loan - User pays principle (classical concessions) - Earmarking resources (only for classical concessions) 	<ul style="list-style-type: none"> - Private sector financing costs more - Payment by shadow toll over 30 years - DBFOs do not enable more to be charged 	<p>United Kingdom Finland (Route #4)</p>
ROAD FUND	<ul style="list-style-type: none"> - Autonomy in road sector management - Possibility of planning road expenditure - Greater possibility of financing politically unattractive expenditure (maintenance) 	<ul style="list-style-type: none"> - Necessity for an efficient road organisation to manage road fund income - Tax base related uncertainties - Resource allocation process not put to democratic vote 	<p>Flemish region of Belgium</p> <p>Luxembourg (Road Fund for motorway projects)</p> <p>Netherlands (Three road funds for the three road categories: national, regional and local)</p>
BUDGET	<ul style="list-style-type: none"> - Democratic process of allocating resources between the various sectors of the economy. - Parliamentary control. 	<ul style="list-style-type: none"> - Budget fluctuations - Public management related constraints - Planning difficulties - Compartmentalisation 	<p>Austria⁴ Germany Denmark Finland Sweden</p>

Note: 1 Special financial instrument not excluding the others used in the same country

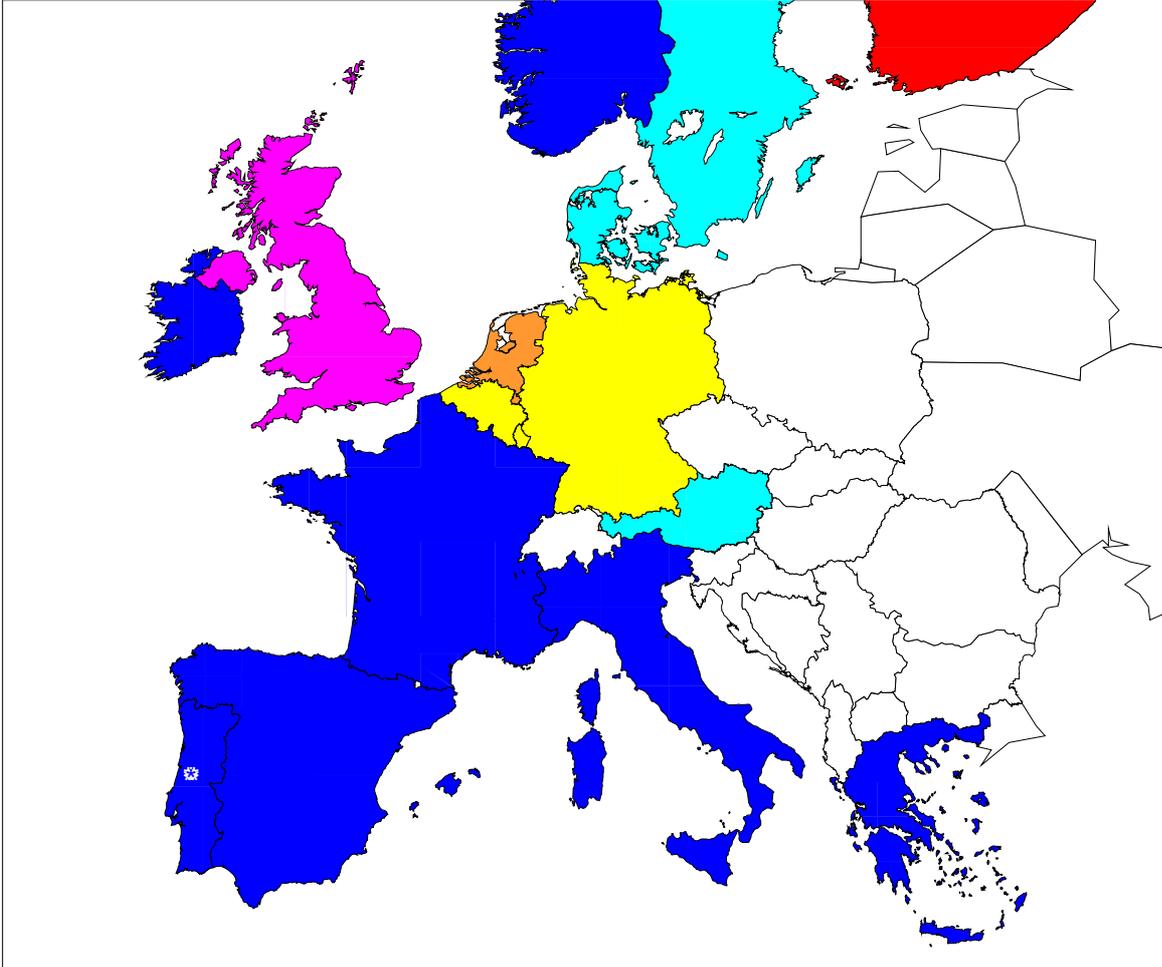
2 This column gives the most representative country for each financial instrument

3 No distinction here between classical concessions and DBFOs (i.e. role of user, risk-taking, etc.)

4 Austria also uses tolls as a source of financing (but, for the time being, most financing comes out of the State budget)

5 Many road projects have been financed by tolls. However the toll road financing organisation is different from the concessionaire systems used in most other European countries.

VIGNETTES, ROAD TOLLS, AND SHADOW TOLLS IN EUROPE IN 1998



- Vignette
- Shadow toll
- Road tolls on bridges and/or tunnels
- Vignette and shadow toll
- Shadow toll and road toll
- Vignette and toll

* : being studied in Portugal

Private Pre-financing. The private interim funding practised in Germany involves the construction of an infrastructure by a private company which is remunerated by means of 15 annual budget payments, as from completion and commissioning of the project. Only construction costs are covered by interim funding, with land purchases continuing to be paid for from the general budget. Private interim funding has the advantage of bringing forward the completion date for the project. However, only 10% of the budget can be devoted to repayment of interim funding, in order to avoid overloading future operating periods. At the present time, 12 pilot projects, representing an amount of DM 4.6 billion, are due to be funded in this way¹⁵.

A move towards the introduction of concession systems in the road infrastructure domain over the last few years in Germany should be noted however, as explained in the following box.

Move towards the introduction of private toll concession systems in Germany

The law of 30/08/1994 concerning the private funding of federal highways instituted the legal framework for private toll concessions for national highways and bridges. This law creates the possibility of transferring responsibility for the work (including studies), maintenance, operation and funding of projects relating to motorways and major national highways to private investors, repayment of the cost of borrowing, as also operating and maintenance expenses, then being borne directly by the user. The law only provides for application of this type of private funding to bridges, tunnels and mountain passes used by motorways and federal highways, and federal highways possessing motorway characteristics (dual carriageways). This limitation is the result of directive 93/89, which prohibits the simultaneous application of road tax and toll on the same road section.

The first projects to be implemented under concession contracts, following promulgation of this law, concern the Warnow crossing¹⁶ in Rostock, and the Trave tunnel in Lubeck. **A total of 17 projects, regarded as priority projects and representing a total length of 283 km, and an estimated amount of DM 6.8 billion, could be funded under the terms of private sector concession contracts.**

It should be noted that there are no plans to place the German motorways under toll for private cars, although this is planned for heavy goods vehicles at the beginning of the period 2000-2010.

¹⁵ The German Parliament authorised the utilisation of this method of interim funding for an additional 15 projects on 25 March 1998.

¹⁶ The contract was signed with the Rostock municipal authority during the summer of 1996.

I.3.4. PRINCIPAL MERITS OF CONCESSION CONTRACTS

It may not initially appear appropriate to transfer a profitable investment project to the private sector, insofar as a state-owned company could undertake the task under conditions which are more favourable for the community (absence of shareholder remuneration constraints). Projects for which foreseeable revenue is insufficient to guarantee the remuneration of credits can only be implemented by means of public subsidies. Furthermore, governments can borrow at more favourable terms than the private sector as the risk is less. A private company must possess substantial equity to undertake a road infrastructure concession project. **However equity funding is costly by reason of the risks involved. It should be remembered that these risks also exist in a case where the State decides to fund infrastructure projects from tax revenue.** In a word, public money also has a cost.

The advantage of selecting a private company to construct and manage a road infrastructure under the terms of a concession contract, is based principally on three factors:

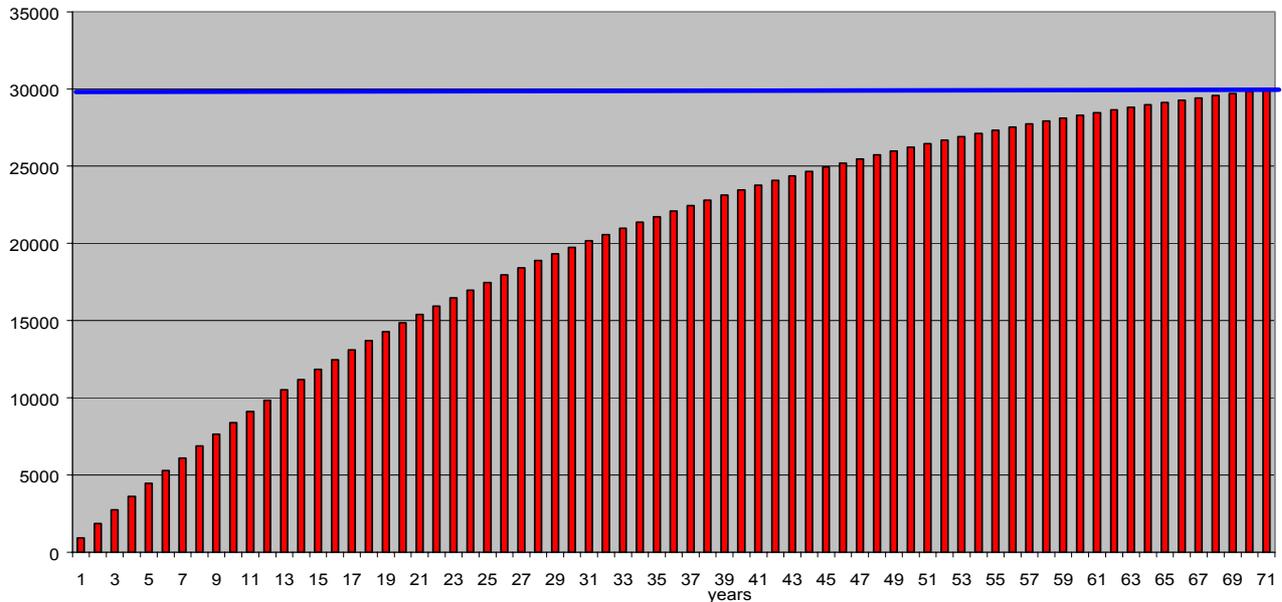
j) Allocation of the funding source and the globality of the concession contract

Allocation of the funding source represented by the toll system is an advantage frequently quoted by the Italian, Spanish, Portuguese and French road administrations. By setting up a concession contract, the government avoids having to bear the construction, maintenance and operating costs of the infrastructure. Allocation of funding sources is made possible by the **particularly stable organisational framework of a concession.** The creation of an autonomous agency (whether semi-public or private), responsible for the construction, operation and maintenance of a motorway section, also represents a direct advantage for the government as it integrates the maintenance, and in more general terms the operation of the motorway from the investment stage onward. **The experience of road administrations, both in Europe and elsewhere in the world, effectively demonstrates that the employer does not always succeed in integrating operation of the road infrastructure at the investment stage¹⁷.** In general terms, a concession contract is advantageous for the public authorities, insofar as the concession company can have a global view of the cost of the investment and its subsequent management, and as a genuine transfer of risks to the concession company also occurs. The notion of global view is crucial, as operating expenses – and this is frequently forgotten – can be as substantial as construction costs. The following graph shows the evolution of operating expenses (aggregate figures and per kilometre) in time. This indicates that **operating expenses (namely maintenance expenses for pavements and shoulders, personnel expenses – including toll station staff – and the various taxes associated with operation) are equal to construction costs after 70 years.** Expressed in different terms, operating expenses

¹⁷ This incapacity is linked, in particular, to the absence of interchangeability between the various categories of expense (maintenance and investment), a certain lack of budgetary flexibility, and a number of organisational problems (separation of the departments responsible for investment and operation in certain cases).

represent about 75% of construction costs after 35 years (normal motorway concession contract duration). This figure is all the more important, as the concession company does not actually bear all, but only part of the construction cost, due to the need for a State subsidy to ensure the financial balance the concession (this subsidy applies to construction costs).

Evolution of operating expenses
(discounted aggregate total in MFF)



Source: French Directorate of Roads, 1998

Assumptions: Motorway in open country, mean construction cost ex. taxes: 35 MFF/km (indicated by blue line on graph) and traffic: 10,000 vehicles/day

ii) Management efficiency

When a concession system is set up, this normally **introduces an efficient management method**. This argument is frequently quoted by those European road administrations which have had recourse to concession contracts. The concession company is generally capable of designing, constructing and operating the motorway more efficiently, as it is not subject to administrative management constraints.

iii) Non-public character of the debt

Furthermore, the **government may wish to avoid increasing the public debt**. This is quoted by a number of European countries, which thus justify their choice of (or intention of choosing) a shadow toll concession contract solution, in order to contribute in this way to meeting Maastricht criteria relating to the public debt (as in the case of Finland and Portugal). It should also be noted, in the case of a toll concession,

that the debt of a concession company does not form part of the public debt either. The reasons noted by Eurostat on this subject are summarised in the following box.

FUNDING AND OPERATION OF "STATE-OWNED INFRASTRUCTURES" BY THE PRIVATE SECTOR

Eurostat has decided to adopt a statistical accounting procedure for investment (capital expenditure) by the private sector in state-owned infrastructures (fixed assets). Two cases can be identified:

- The first case (case 1) is where the public authorities call on a private company to construct and fund a fixed asset, and acquire ownership of the asset as it is constructed. The capital expenditure must then be recorded in the public administration sector. The investment has the effect of increasing the government deficit. In fact it has no impact on the public debt as defined in European Council Rule No. 3605/93, as this rule provides that public administration commitments to the private sector, in the form of medium- and long-term commercial credits recorded in the public administration account, are excluded for measurement of the public debt in order to meet convergence criteria.

- The second case (case 2) is where the public authorities call on a private company to construct a fixed asset, and operate this asset during its lifetime, ownership of the asset being acquired by the company. The capital expenditure must then be recorded in the private sector, as it has no effect on the government deficit or public debt (...).

Concrete examples are given below:

Case 1 applies in particular to private sector construction and interim funding of roads in Germany. At least twelve projects have been initiated at Federal Republic level since 1995/1996, together with a number of projects at Land and commune level. It is also planned to fund the construction of a high-speed rail system in the same way. The government deficit includes payments due as the work is completed. The amounts involved, estimated at DM 4 to 5 billion in 1997, represent only a small percentage of GNP.

The Öresund bridge between Denmark and Sweden is an example of case 2. Construction of the bridge by a consortium of state enterprises owned by the Danish and Swedish Governments commenced in 1996. The consortium is funding the operation by borrowing, under State guarantee, on the money market. The bridge is scheduled for completion in the year 2000. The consortium will then have a concession for operating the bridge, and toll revenue will be allocated to the operator. It is estimated that the debt will be repaid by 2026, at which time the consortium will continue to operate the bridge with no limitation in time. Capital expenditure is recorded in the business sector, with no impact on government deficit.

Some of the private finance initiative contracts in the United Kingdom represent another example of case 2. Instead of acquiring and operating an asset, the State acquires the services of a private sector operator. The operator then acquires the asset in order to supply the services required. Capital expenditure is recorded in the business sector, and has no impact on the government deficit. The public administration accounts record the purchase of services supplied by the operator, thus contributing annually to the increase in the government deficit.

Eurostat confirms that the accounting procedures described above, and recorded as such in the public administration accounts in Germany, Denmark, Sweden and the United Kingdom are correct. In the returns which the Member States submit twice yearly to the European Commission, in the framework of the procedure relating to excessive government deficits, these amounts are taken into account in accordance with the accounting practice described above.

Source: Eurostat press release No. 1697 dated 21 February 1997: "Accounting operations. Latest Eurostat decisions concerning deficit and debt".

It is also appropriate to make a prior analysis of the various objectives sought from a concession, and disentangle the various domains, making a distinction between those where direct competition between companies is appropriate, and those where the best solution is for the service or services to be provided by a single company via a concession contract. A concrete example of this principle in the road domain is the provision of communication services.

I.3.5. INTEGRATION OF SOCIO-ECONOMIC AND EQUITY RETURN IN CONNECTION WITH THE DECISION TO SET UP A CONCESSION CONTRACT

As confirmed by the Norwegian study undertaken in 1998 for DERD/WERD, a number of different types of socio-economic road project analyses can be identified in the European countries, the two main families **being conventional cost-benefit analyses** on the one hand, and **cost-benefit analyses combined with multicriterion analysis** on the other. As regards the monetary measurement of external effects (pollution, greenhouse effect, noise, etc.), **values differ substantially from one country to another**. This also applies to the valuation of time, an essential element of socio-economic analysis, estimated at 5 Euro/vehicle.hour in Germany, compared with 23 Euro/vehicle.hour in Norway¹⁸. Socio-economic analysis is naturally of primordial importance insofar as it enables the authorities to justify the need to go ahead with a project or not.

The establishment of a road infrastructure concession effectively follows a logic involving the socio-economic return on the project upstream (thus measuring the advantage for the community), and the return on equity from the operation downstream. **It is important to bear in mind that the benefit of an investment for the community is regarded solely from the economic return point of view**. Indeed the community takes all the players concerned (public authorities, frontage residents, users, concession company where appropriate, and other transport mode operators) into account, consolidating the individual budgets. Furthermore, return on invested capital integrates a wide range of effects, not restricted to commercial effects only, provided measurement in monetary terms is possible.

Return on equity defines the conditions for the feasibility of a project, where the latter can be funded by collecting toll from all or some users. However, return on equity cannot serve as a basis for selecting a state-owned infrastructure as:

- this indicator corresponds to the point of view of a possible concession company or concession authority, which is examining the conditions under which this option could be adopted, and
- return on equity is based on terms of revenue and expenditure for the concession company.

¹⁸ Source: Norwegian study mentioned above, entitled "Compiling methods for measuring impacts of road projects in member countries". Kjell Bjorvig, Norwegian Public Roads Administration. DERD, National Working Group on Economic Assessment of Road Projects, 1998.

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However, these two approaches are not independent. Introduction of a toll system has a dissuasive effect for some users. Furthermore, all things being equal, a toll system reduces the advantages for the community. On the other hand, a toll system can enable the community to make a profitable investment, which would otherwise be made at a later date, and would therefore finally present a less favourable collective budget situation.

The following graph summarises this problem, identifying the various decisions which road administrations are required to take when selecting a project and the funding of this project (budget, toll concession, shadow toll, etc.). Furthermore, not only investment measures, but also in situ development and traffic and other means of transport management measures are taken into account¹⁹. It thus appears that **the feasibility of a concession comes down to a compromise between various sub-optima:**

- funding constraint, which limits possibilities for achieving economically profitable investments;
- allocation of sources, collected from the user rather than the tax-payer, leading to a preference for investments which can be funded to the detriment of other solutions, which are nevertheless more advantageous for the community in terms of economic balance, but which ensures their feasibility;
- toll dissuasion effect, which reduces the economic advantage of the project.

As shown in the graph below, any decision relating to the methods of financing a road project (toll concession, shadow toll concession, etc.) is based on calculation of **discounted earnings** which is the difference between net global benefit and investment cost. This indicator measures the variation in public utility associated with the development scenario, making it possible to judge its intrinsic interest. This selection criterion leads to the adoption of development scenarios for which discounted earnings are positive.

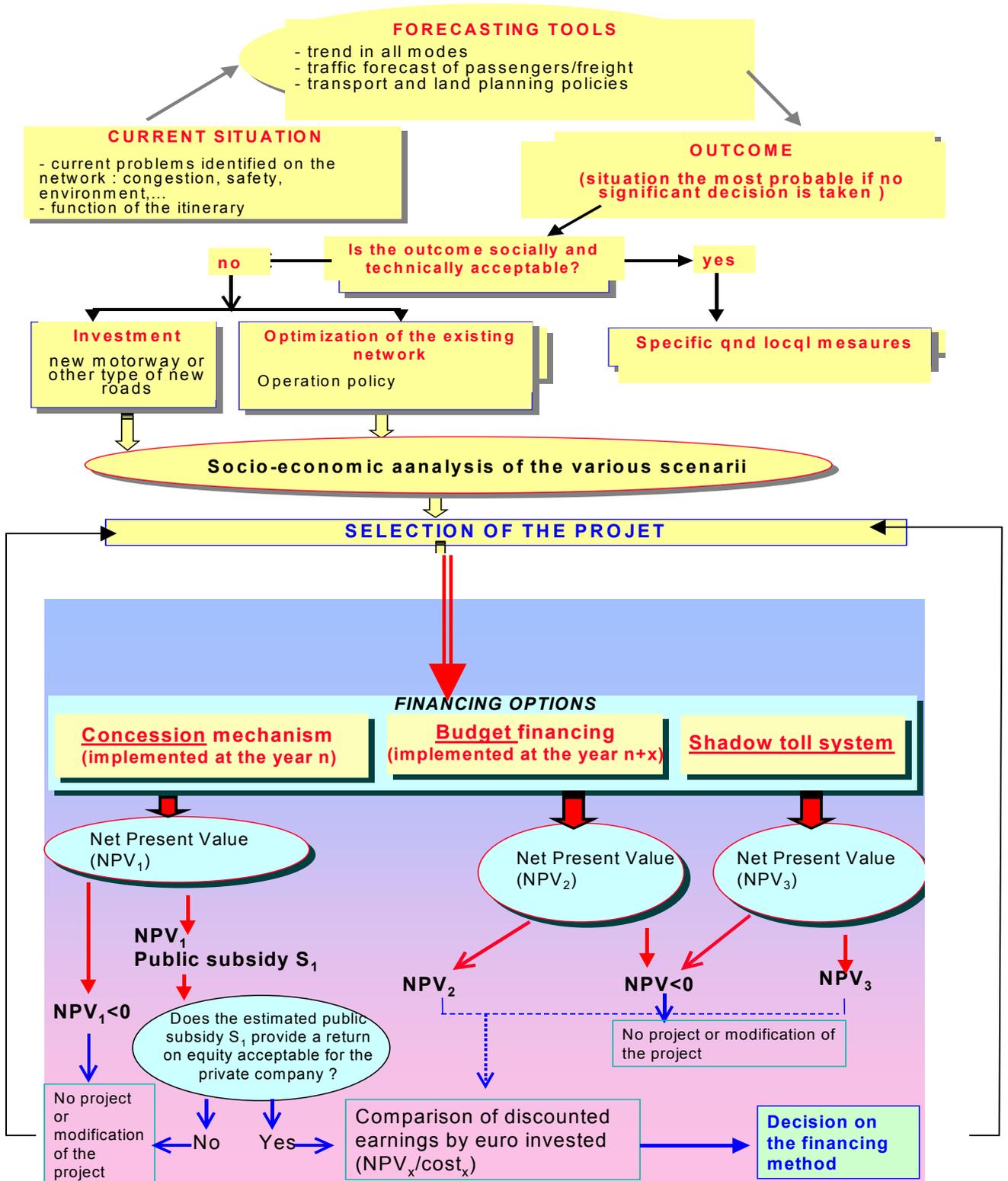
I.3.6. Comparison of state-owned and private concession companies

There are currently 63 state-owned concession companies and 28 private concession companies in Europe. However, numerous companies have merged within the last few years (examples include ASFINAG in Austria, which recently acquired control of two state-owned concession companies, Alpenstrassen AG and Österreichischen Autobahnen und Schnellstrassen AG (Ossag), and similar operations in Spain, Italy and France), and it is consequently more significant to argue in terms of network size under concession to state-owned and private companies. We then find that **that out of a total of 17,009 km of motorway under concession, 12,461 km are managed by the public sector (73%), and 4,548 km by private companies (27%).** The following table summarises the situation in this context for each European country employing concession contracts. This table

¹⁹ For further details, refer to the French Directorate of roads circular dated 20-10-98 on methods for economic evaluation of open country road investment programmes.

SELECTION PROCESS OF A PROJECT AND ITS FINANCING

When to launch a concession?



Notes:

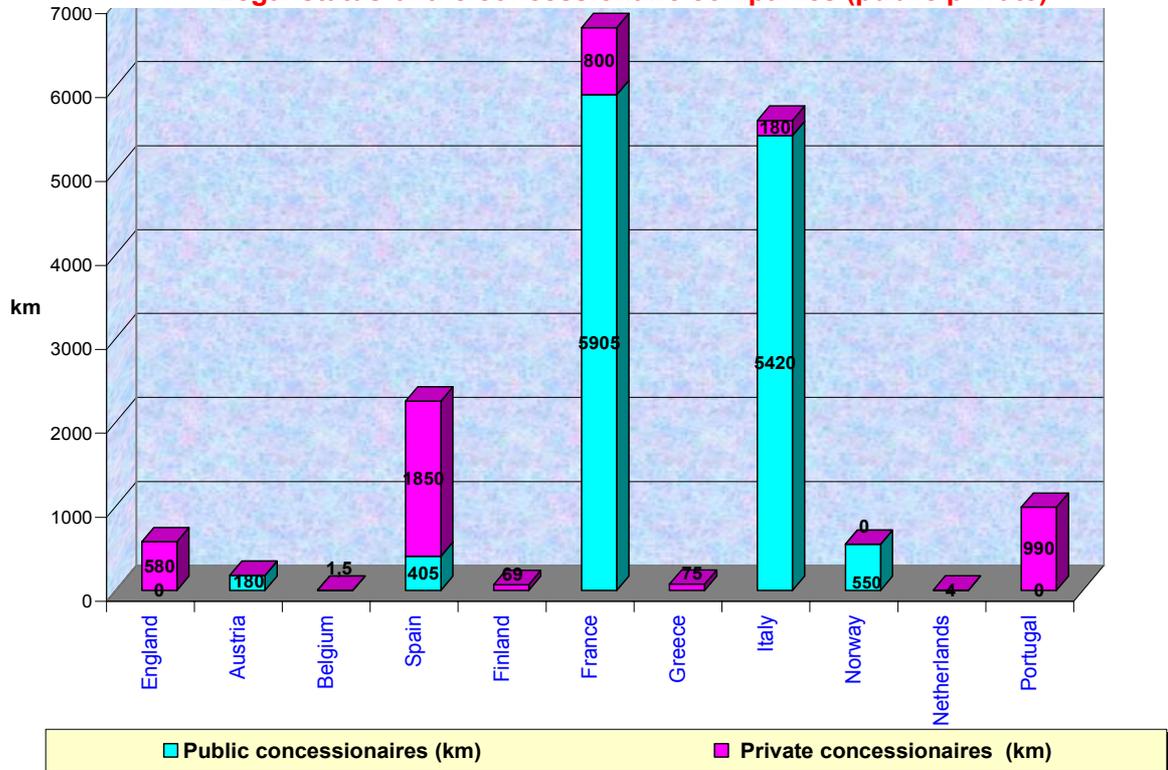
x represent the number of additional years corresponding to the possibility of State's and local collectivities' financing

NPV = Net Present Value

The discounted earnings by euro invested is the ratio between the discounted earnings and the investment cost. This ratio enables to prioritize the various investment scenarios, taking into account the financial constraint.

includes both toll and shadow toll concession systems also. It should be noted that all shadow toll concession companies are private.

**Practice of motorway concession in Europe
Legal status of the concessionaire companies (public/private)**



The question of awarding a concession to a state-owned or private company frequently arises, although the question has lost some of its relevance, in particular by reason of the EC rules governing the award of contracts. It is appropriate to provide some of the answers at this juncture, in an attempt to rationalise this choice as far as possible²⁰.

The choice of a state-owned²¹ or private company for a motorway concession involves a number of factors, including the return on equity and socio-economic return of the project, but also criteria which take account of "market realities", of which return on equity is also a component (a private company will only consider a project under certain conditions).

²⁰ This question is also linked to application of a toll system to the infrastructure under concession. The latter point is examined in section I1.1 above.

²¹ It would be appropriate here to make a distinction between entities managed as companies, but where the capital can be held by the public or private sector, and other entities (state-owned establishments, agencies, etc.) which are fundamentally units of the public authority.

The following arguments frequently conflict:

- Firstly, **a concession company need not be private to be efficient.** The State can create a separate entity having the status of a state-owned company, keeping its own accounts and applying management discipline similar to that of a private company. This entity borrows funds, which it repays with income from the revenue source. This solution makes it possible to circumvent state-owned status constraints (see section I.3.4 for further details), and achieve a certain degree of efficiency in the management of the infrastructure. A major difference between this solution and that involving a concession contract with a private company, is that the State does not generally abandon a state-owned company which is in difficulties, in just the same way as it tends to dip into the coffers of a state-owned company which is generating a surplus.
- Secondly, it is frequently suggested that the management methods of private investors (in particular as regards wages and salaries, and the recruitment of staff in the financial and legal sectors) are more likely to achieve efficiency than those practised in the public sector. Moreover, the obligation to use bank credit lines subjects the investment project to rigorous audits by the banks themselves. This intrinsically very meticulous evaluation of projects, based by definition, exclusively on financial criteria, contributes to the enhanced efficiency of the private sector.

In schematic terms, we can use two "extreme" examples to address the question of concession contracts with state-owned or private companies:

1. The first example concerns **an operation conducted at a "low" return on equity** (of the order of 2 to 4%), which could reflect modest forecast traffic levels and/or high construction costs. The choice of a state-owned or private concession company is frequently replaced by a choice made at an earlier stage, relating firstly to the very relevance of adopting a concession contract, and secondly to the need for applying a toll system to the section concerned. We have therefore to turn back at this point to the three main advantages of a concession contract, compared with a simple work contract, in the concrete case of the project (see section I.3.3).
2. On the other hand, we can consider a case where **the return on equity anticipated from a motorway concession contract is high.** Two points must be examined in this case. The first concerns the social acceptability of a toll system. Indeed, as we have already seen, **the nature of the concession company (state-owned or private) has an impact on this factor. The second point is linked to the possible existence of an undue benefit, which is disproportionate to the risks borne by the concession company.** In this case, if the concession is awarded to a private company, it is important to limit payments to this company (while naturally allowing the latter a level of profit in proportion to the risks which it bears). This limitation can be imposed in one of two ways: firstly by **capping the toll revenue collected by the company**, and secondly by **restricting the rate of return for the company** (a good example of this practice is the situation of the public utilities in the United Kingdom). Both methods are described in detail in the second part of this report. In general terms therefore, the objective appears to be **to identify a state of equilibrium, or a fair sharing of risks between the concession authority and the concession company.**

II. KEY COMPONENTS OF A ROAD INFRASTRUCTURE CONCESSION

The main components of a concession contract, as examined below, are:

- lot size,
- concession period,
- toll charges,
- concession award criteria,
- potential for development of new ideas by the concession company,
- sharing of risks between concession authority and concession company.

The various practices adopted by European road administrations regarding the key components of concession contracts, and the difficulties encountered by these administrations with setting up (and monitoring) concessions are reviewed in the following paragraphs. The part played by the concession authority in the context of a concession scheme is also examined.

II. 1. Concession lot size

Definition of the "exact" size of the concession lot is the responsibility of the State. This task is a delicate one, as emphasised by the Portuguese and French directorates of roads in their replies to the questionnaire. The composition of each lot depends, among other aspects, on the degree of competition expected. **Grouping of a number of motorway sections in order to offer a lot of substantial size has the advantage of reducing management costs**, which are customarily high for a concession. **Management and transaction costs (including fees for advice from banks, legal experts and consultants) must be monitored with care.** The involvement of the private sector in the funding of infrastructures generally has the effect of increasing this type of cost.

Furthermore, an adequate size can lead to enhanced productivity on the part of the construction contractors, resulting from optimised utilisation of plant and equipment.

The size of the concession lot is also linked directly to the backing mechanism. If the facility placed under concession is sufficiently large, it is then possible to achieve a balance between profitable and less profitable sections. **One of the difficulties frequently encountered during preparation of an infrastructure concession contract, is that of making the package of sufficient interest from the financial point of view for the private sector.** This difficulty was mentioned in particular by the British Highway Agency and the Spanish Directorate of Roads.

Another question is frequently linked to this problem of defining the optimum size for concession lots, namely that of **land purchase**: purchase at what price, and by whom? While it is obviously necessary to address this problem case by case, it can be said that **provision of the land to the concession company spares the latter the difficulties of expropriation, while constituting a financial**

support relatively well accepted by public opinion (more so as the land in question remains the property of the State). Intervention by the concession company nevertheless induces additional flexibility during land purchase negotiations. For example in Spain, the land is expropriated by the State. The concession company, which will use the land, is responsible for paying the cost of expropriation, although the State retains ownership of the land. The facilities constructed, as also plant and equipment used directly for operation are included in the concession of which the State is the owner. The State accords the concession company a right of use throughout the period of the concession. Likewise in France, the State is owner of the infrastructure under concession. The concession company acts in the name of the State throughout the period of the concession, and is thus able to acquire land under the terms of enforceability attaching to the declaration of public utility. At the end of the concession period, the complete infrastructure (including operating buildings) reverts to the State.

II. 2. Road infrastructure concession period

The period for an infrastructure concession (covering construction and operation) is lengthy, normally 30 years or more (the mean figure is 30 years in the United Kingdom, Portugal, Italy and the Netherlands, 75 years in Spain since the law of 30/12/96, and a minimum of 15 years in Finland). The concession period for state-owned companies in France has been based on the loan repayment period. The period for concession contracts with private companies is substantially longer.

On this subject, it is important to emphasise **that a long concession period secures the position of the concession company, but involves an annual payment risk (see section on methods of annual payment limitation). A balance must therefore be found, and at all events, phases for "renegotiation" between the concession authority and the concession company must be incorporated** in the framework of a concession arrangement.

A **problem** frequently associated with definition of the concession period relates to **the exclusivity to be attributed to the concession company**. As a general rule, the concession contract accords exclusive rights to the concession company for the execution of work, and the supply of services throughout the period of the concession. There can however, be exceptions to this "rule", insofar as the public authorities can prefer to grant exclusivity to the concession company for a given period which is less than the total period of the concession, and allow other companies to enter the market, and compete with the first concession company for the supply of services. The aim of the public authorities is then clear, namely to guard against any excessively monopolistic attitude on the part of the concession company. This practice is frequently based on other business sectors, such as gas, electricity and telecommunications (where the concession primarily covers the provision of services), and also rail transport. Lessons on the subject of "non-exclusivity" can nevertheless be learnt for the road sector, and in particular in the area of road operating concessions.

Problems of long-term traffic prediction, which are as thorny for the public sector as the private, could argue in favour of reducing the length of motorway concessions to around 20 years. However, it should be noted that a shorter concession

period would require a higher rate of remuneration for the concession company, resulting in turn in an increase in toll charges, or a larger government subsidy, so that the effect in either case would be to reduce the socio-economic return of the project, and consequently the benefit for the community.²²

Although not yet practised by the road sector in Europe, mention should also be made of **endogenous period concessions**. In this case, the period of the concession is not pre-established, but depends on the a posteriori profitability of the project. The public authorities set the amount of the toll charge, and each candidate concession company responds with an estimated discounted revenue amount for the project in question. The selected concession company implements the project and is remunerated in conventional manner by the users, and **the concession period terminates when the discounted revenue amount collected reaches the amount quoted by the concession company in its bid**. This method has been applied for motorway concessions in Latin America in particular. The main interest of an approach of this type is that the concession company does not have to carry the traffic risk, a factor which is sometimes excessively unpredictable. The traffic level has an indirect impact, insofar as it affects the rapidity with which the remuneration initially negotiated is achieved. **This system also strongly encourages the concession company to reduce its costs**, as it has no possibility of increasing the toll charges. On the negative side for this method, it should be pointed out that the State has no prior indication of the termination date for the concession (with the normal system, the end of the concession period is always defined in the initial contract, but this is frequently subject to numerous extension amendments).

II.3 Definition of toll charges

European experience demonstrates that two cases can be considered, depending on whether the road infrastructure is under toll or not (shadow toll method).

II.3.1 Setting toll charges²³

The European countries operating toll systems are Austria, Spain, France, Greece, Italy, Norway and Portugal. A maximum toll charge is sometimes specified in the concession contract, but the concession company is naturally free to reduce this if necessary. This corresponds to the current situation in Portugal and Spain. In France, toll charges are set under the terms of five-year contracts. There is consequently no real uniformity. Nevertheless, we can consider that the rule most frequently followed links the global evolution of toll charges to the general rise in retail prices (excluding tobacco). Charges are revised annually, within $\pm 15\%$ round this evolution rate. **The legibility of this rule is of primordial importance where toll charge definition is concerned.**

²² With the additional assumption that an increase in toll charges is socially acceptable, which is far from always the case, in particular in an urban environment as pointed out in section I.1.3.

²³ Toll charges practised in Europe are examined, in part, in section I.I.3.a.

As we have seen, it is important in the case of a private concession to limit the annual revenue of the concession company, while nevertheless leaving a profit margin corresponding to the risks borne by the company. This limitation can be achieved in one of two ways, on the one hand by **capping the amount of toll revenue collected by the company**, and on the other by **limiting the rate of return for the company** (this method is applied for the public utilities in the United Kingdom, in particular). The two methods are examined in the box below.

Two methods for limiting concession company annual revenue

Capping the amount of toll revenue. This method has been applied increasingly over the last ten years, due to its incentive effect which encourages the concession company to achieve greater efficiency. The price practised by the concession company is revised and adjusted at approximately 5-year intervals, according to the rate of inflation plus or minus a predetermined amount. A comparison with the public utilities in the United Kingdom can be of interest here. In this case, the price escalation and regulation rule is expressed as RPI-X, where RPI is the retail price index and X represents the estimated future efficiency gain of the concession company. This method is also applied in New Zealand (for telecommunications), Argentina and a number of developing countries including Malaysia, Mexico and Peru. **One of the drawbacks of this method is linked to the asymmetry of information between the concession authority and concession company**, due to the fact that price regulation is based on the estimated internal efficiency of the company, and therefore on data which are not generally disclosed by the concession company.

Rate of return regulation. This method is used in particular in Canada, the U.S. and Japan. The public authorities set the rate of return for the concession, and this determines the price to be applied by the concession company. This price is revised as and when the concession company experiences a rate of return different from that anticipated. This second method consequently embodies a much weaker incentive factor than the first.

It should be borne in mind that **utilisation of one or other of these methods of limiting the concession company revenue induces a different sharing of risks between concession authority and concession company. In particular, capping the toll charges practised by the concession company means that the latter has to bear greater risks.** In a case where the production/construction prices rise, the concession company cannot pass on this increase. The additional risk thus carried induces an increase in the cost of capital, and therefore a higher rate of return – in order to satisfy investors – than with the second regulation method.

Source: "Price Caps, Rate of Return Regulation and the Cost of Capital", Ian Alexander and Timothy Irwin, Public Policy for the Private Sector, World Bank., September 1996.

For example **in Italy**, toll regulations have changed substantially over the last few years. The main change dates back to 1992 when it was decided (law 498) to adopt a **"price cap" type formula for the adaptation of motorway charges, taking account of variations in inflation, traffic levels, productivity indicators and the content of the business plans of the various concession companies.**²⁴ The formula established at the meeting of the CIPE (Interministerial Committee for Economic Programming) on 20/12/1996 was written into the new agreement stipulation between ANAS and

²⁴ Extract from the AISCAT document: *"Motorway toll charges and price capping in Italy"*, ASFA, September 1998.

Autostrade in August 1997, and will be incorporated in new contracts with the other concession companies. The formula adopted is as follows:

$$\Delta T \leq \Delta P - X + \beta \Delta Q$$

where

- ΔT : applicable toll charge adaptation.
- ΔP : programmed inflation for the year of application of the change.
- X : expected productivity factor (to be determined, for each concession company, taking account of a fair return on capital, future investment projects, expected modification of productivity and traffic growth forecasts).
- β : positive coefficient.
- ΔQ : quality of service indicator variation.

Mention should also be made of "intermediate" methods, involving concession fees, tax-related measures, and the combination of the two methods described above. It should also be emphasised that recourse to concession fees should be "moderate", in particular during the early part of the concession period, in order to avoid over-burdening the concession company unnecessarily during this phase. Other means of limiting concession company revenue also exist.

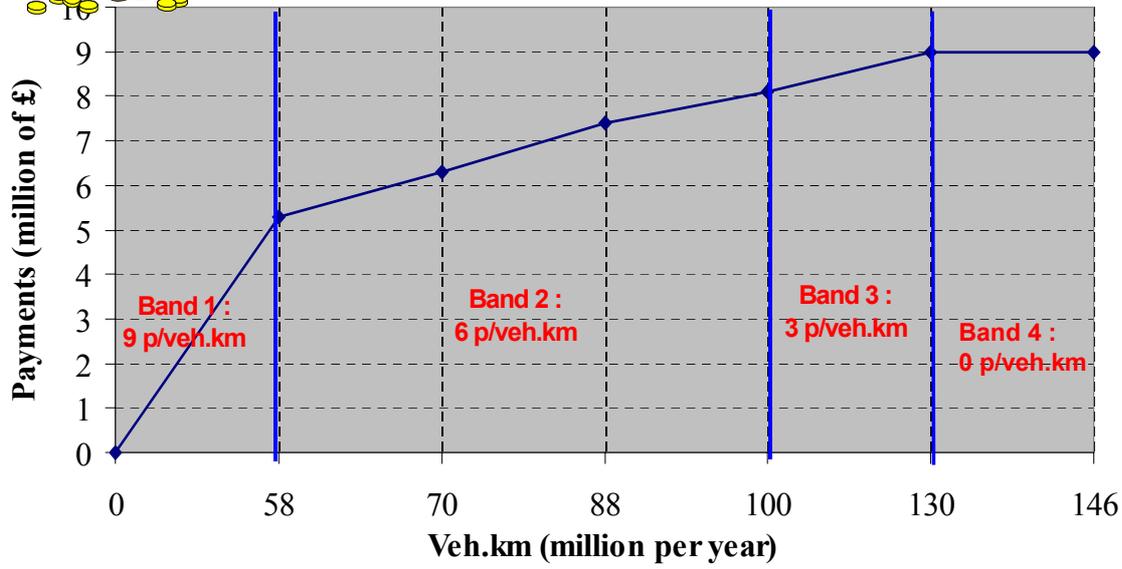
II.3.2. Remuneration of concession companies on a DBFO type basis – the interesting "traffic band" concept

In the case of shadow toll concessions, **the concession companies are remunerated principally on the basis of recorded traffic levels.** Taking the British example, four "traffic bands" have been defined (see graph below), each with a specific concession company remuneration rate, as follows:

- 0 to 70 million veh.km: 9 p/veh.km,
- 70 to 100 million veh.km: 6 p/veh.km,
- 100 to 130 million veh.km: 3 p/veh.km, and
- over 130 million veh.km: zero remuneration.

Remuneration of the concession company is thus capped, as there is no further payment ("**price cap**" system) above a certain traffic level (130 million veh.km in

REMUNERATION OF CONCESSION COMPANIES UNDER A DBFO CONTRACT : THE INTERESTING "TRAFFIC BAND" CONCEPT



Example for a 100 km long section
F. ROUSSELET

the example examined). It should be noted that the concession companies were free to establish their own traffic bands, and their own remuneration rates. These parameters were then negotiated with the Transport Department. Candidate concession companies had access to traffic data recorded on the section in question, or traffic predictions established by the British Highway Agency in the case of new motorways.

The contract (established for a period of 30 years) is such that the concession company is encouraged to carry out motorway repairs efficiently. Payment by the public authority takes account, not only of the traffic levels recorded, but also the performance of the concession company. This performance can be measured, for example, on the basis of the number of lanes closed to traffic (and the time taken for the repair work), or the measures introduced by the concession company to improve road safety.

II.4 Concession company selection procedures and criteria

Analysis of the replies to the questionnaire issued to the European road administrations reveals that **numerous different approaches are currently employed for the award of motorway concessions. The differences between the approaches lie firstly in the criteria adopted for the assessment of bids, and secondly in the weighing factors applied.** The following table summarises the methods used for the award of concessions in the four countries where the approaches appear to be the most highly formalised.

WEIGHTING OF CONCESSION COMPANY SELECTION CRITERIA IN FOUR EUROPEAN COUNTRIES (%)

	Shadow toll		Toll	
	United Kingdom	Finland	Spain	Portugal
State subsidy			35	
Coherence of concession company financial plan	Criterion: lowest NPV ¹ of payments to a concession company	90 (for NPV)	30	70
Investment, toll charges operating costs			25	
Completion dates for execution of work				
Design	Technical minimum required (best non-enhanced solution)	10 (for technical criteria)	10	30
Quality of service/maintenance				

Source: Table based on replies to the questionnaire issued to the European road administrations

Note. 1. NPV: Net present value for scheduled payments by the highway agency to the concession company.

EC legislation in the contract award domain (see part III) **currently makes the award of motorway concessions subject to prior publication obligations. Once these obligations have been met in accordance with the prescribed procedures, bids submitted can be negotiated freely.**

Among the most important criteria adopted by the road administrations, and mentioned in the replies to the questionnaire, we can note, **first and foremost, the amount of the subsidy required, the credibility of the financial package, the technical quantity of the project and the operating toll charge policy.**

Criteria are not always quantifiable or quantified. Thus in many countries, the award of a concession is the result of a compromise between the amount of the subsidy required and the dissuasion effect of a toll on the one hand, and examination of the reputation of the concession company (experience in the domain, references, membership of a large public works engineering group, etc.) on the other. This corresponds to the case in France in particular. **The public authorities consequently attach particular importance to the financial feasibility of the operation proposed by the concession company, also taking account of the dissuasion effect in favour of non-paying infrastructures (but which are also less safe and more highly pollutive) of an excessively high toll charge.**

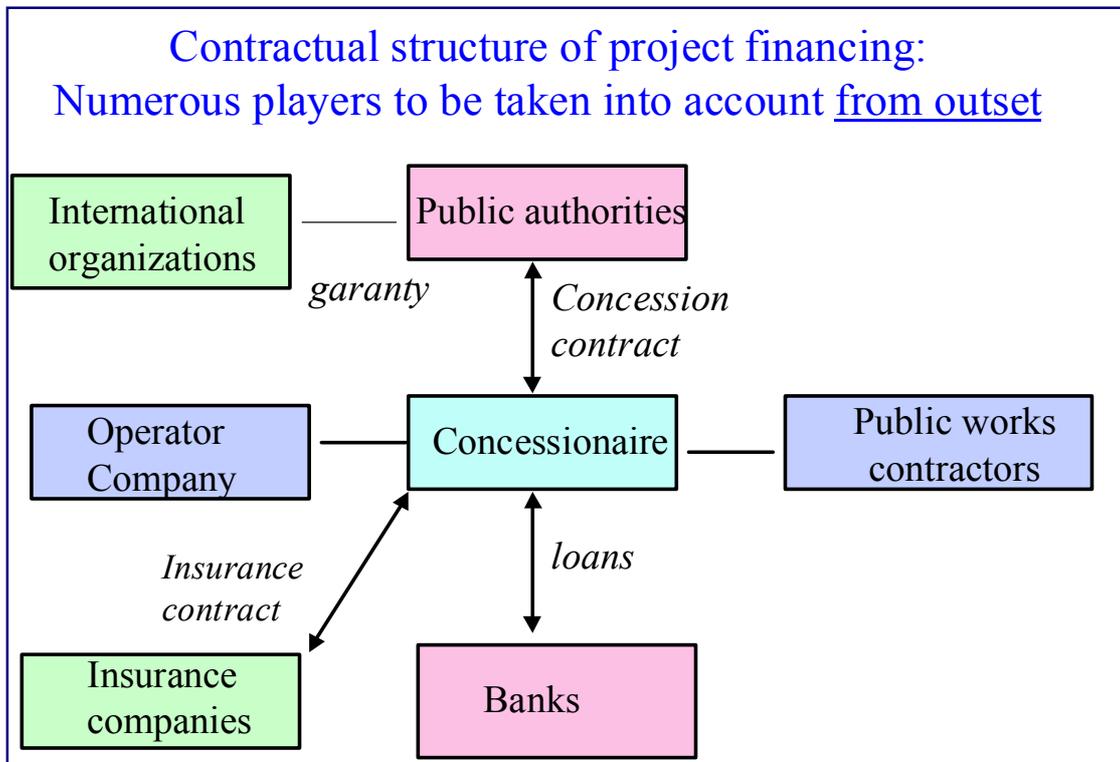
Selection criteria must be clearly established wherever possible. Furthermore, renegotiation between the State and the concession company must be planned on signature of the contract, in order to reassess environmental, political and traffic-related constraints. The basis for this reappraisal must be agreed at the outset.

A substantial difference should be noted at this point, between the award of conventional work contracts and concession contracts. The principle of negotiation is particularly important in the latter case.

It should also be noted that the key players involved must be taken into account when a concession arrangement is set up. By comparison with a simple work contract, where in simplified form, the employer need only concern itself with the public works contractor, **a concession contract is a complex mechanism, where commercial banking institutions and, in certain cases, international organisations must be brought into the picture, as far as possible, as from the commencement of negotiations (or even the upstream studies) between the concession authority and concession company, as indicated in the diagram below.**

For example, **the structure of the consortium responding to the concession call for tenders is of primordial importance.** Where the promoters of concession projects are in the majority, public works contractors (frequently the case), said promoters will privilege the construction phase (as being more lucrative) to the detriment to the operational phase. They will therefore tend to accept certain constraints more easily in order to obtain selection, and then renegotiate later with the public authorities and concession company. This type of scenario generally induces major difficulties associated with reappraisal of the profitability of the project, or withdrawal of the lending institutions. **The concession authority must therefore ensure that mechanisms are provided, which oblige the companies involved in a concession scheme to "stay inside the system".** The role of banks is also crucial, not only by reason of their lender function, but also insofar as they will decide to participate in the

financing of a project on the basis of the solvency study, which in turn involves assessment of the return on equity for the operation. This **ex ante assessment** is important in that it contributes to the selection of genuinely profitable projects.



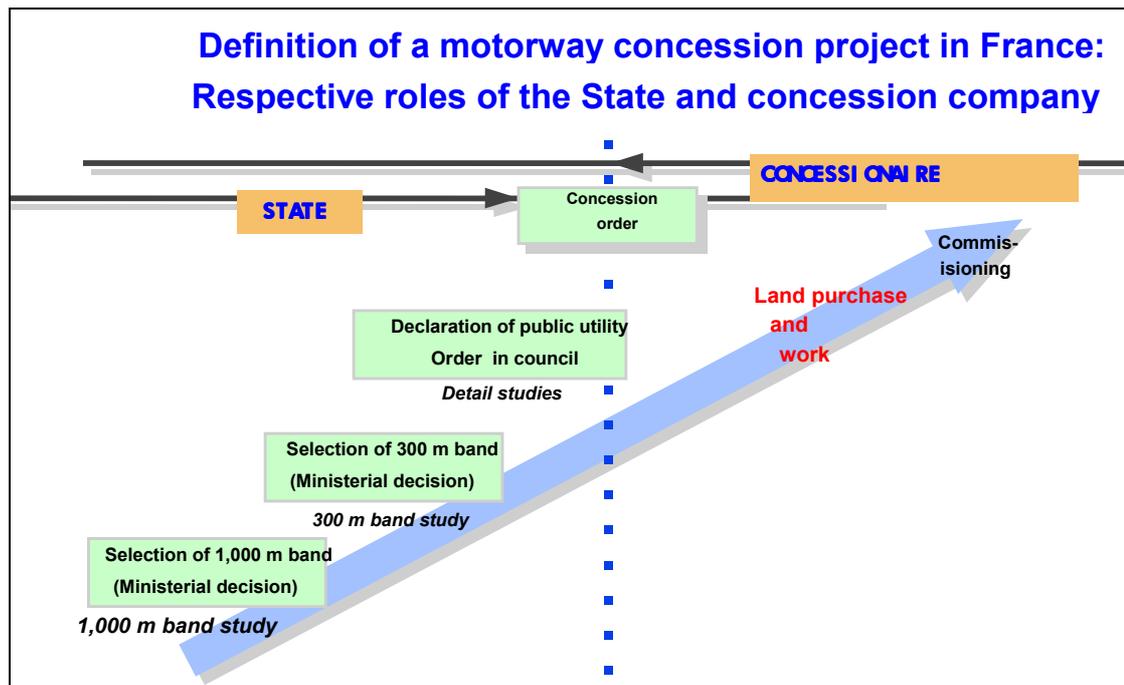
It is also important to obtain adequate commitment on the part of the future concession company, for example in the form of a letter of agreement specifying an initial bond, followed by a "first request guarantee" so that the candidate is genuinely committed (when the actual project has progressed sufficiently far, the guarantee becomes intrinsic and equates to the funds committed to the operation itself).

II.5 Concession company freedom

Analysis of the replies to the questionnaire shows, **in contrast to the situation with a work contract, that the concession company is customarily allowed a certain degree of freedom in the areas of design, execution of the work, toll charge policy and level of service.** While we examined toll charges in section II.3, it is appropriate at this point to examine the degree of freedom allowed to concession companies in Europe in the areas of design and implementation of the concession contract.

As regards design, the degree of freedom allowed to the concession company varies from one country to another, also naturally depending on the project itself. For example **in Spain**, the concession company is responsible for feasibility studies, on the basis of a 1/5,000 scale preliminary study provided by the road administration. Award of the concession is therefore based on the preliminary design, following a public inquiry and assessment of the impact on the environment, and it is finally the concession company which defines the construction project. A relatively decentralised procedure has been set up **in France**. At the motorway preliminary design

stage (precise motorway route study), the concession company is responsible for geometrical definition of the total land requirement, interchanges, repair and reopening of existing roads and bridge studies, in collaboration with elected representatives, frontage residents, and local associations and administrations. **In the United Kingdom the concept of concession company freedom is particularly important. The advantage of DBFO type methods stems primarily from the degree of innovative freedom allowed to the concession company, the transfer of risks to the latter, and the greater efficiency resulting from private management. In Greece, the State hands over the project to the concession company on completion of the preliminary design study and land expropriation, passing on the requisite environmental and archaeological authorisation documents.**



Companies generally work on the basis of a preliminary design supplied by the State. As regards execution of the project, the contract between the State and the concession company is frequently drafted in such a way as to allow the concession company to introduce innovative ideas to a certain extent. A motorway concession project is necessarily evolutive. The final characteristics (such as pavement thickness) can be achieved progressively in order to reduce initial investment, as demonstrated by the concession company Cofiroute in France.

The actual concept of a concession, as examined in section 1.1, demonstrates **the potential importance of allowing a concession company to submit innovative solutions for the design and execution of the project.**

This raises the problem of preserving the ideas and eventual technological contribution of a candidate concession company. Public authorities will be well advised to take particular care not to scare off the private sector. This can be achieved by establishing clear rules governing the utilisation of such ideas. The key word is consequently transparency, associated with the prior establishment of clear-cut rules.

II. 6. Sharing of risks between public authorities and concession companies

II.6.1. Transfer of risks in the case of a toll concession

The risk-sharing structure is clearly identified by the national road administrations as being an essential component of a concession contract. But here again, the notion of risk on the one hand, the actual risk sharing practised between concession companies and public authorities on the other, vary significantly from one country to another.

In general terms, from the replies by the national road administrations to the questionnaire, we observe agreement on the fact that **not all risks are the same, and must not therefore be borne by the same entity**. The theory on this point is relatively clear, in that a risk should be carried by the entity best suited to do so. **The ability to control a risk signifies the possession of adequate structural tools for reducing the costs associated with carrying this risk**. Care must also be taken to ensure that an entity carrying a given risk possesses the incentive to do so. If the public authority seeks to persuade concession companies to take certain risks which they are unable to control, this will result in prolongation of the negotiations, and an increase in the level of remuneration demanded by the investors. If on the other hand the concession company seeks to disengage itself from purely technical or principally commercial or financial risks at the expense of the State, it is then the utility of the concession which should be re-examined. The transfer of risks from the public authority to the concession company induces enhanced productive efficiency.

In practice, the sharing of risks raises a number of difficulties: it is not always easy to determine to what extent an entity is capable of controlling the risks concerned. In general, exogenous costs (those over which the entity does not have genuine control) should not be borne by said entity.

It is appropriate at this point to **note the problem of the growing mesh of motorway networks, which is creating difficulties with respect to the attribution of the commercial risks**. The growing degree of interrelationship between motorway sections under concession with the same network, makes it increasingly difficult for the commercial risk to be borne by the concession companies alone, due to the fact that traffic levels can vary substantially according to the commercial policies defined on an individual basis. Consequently, **the public authorities are increasingly having to play a regulatory role, in particular by providing a coordinating function between the various concession companies**. The final part of this report will revert to the impact of the motorway network mesh on possible methods for awarding motorway concessions.

Finally, risks are shared not only between the public authorities and concession companies, but also with the public works contractors, operating companies and insurers (this illustrates the complexity of a concession type package, where a number of players are concerned). Four categories of risk can thus be encountered in a concession system:

- **Political and legal risks.** These risks are borne by the State (with guarantees where necessary). These risks can concern three domains in particular: i) natural phenomena, force majeure, war or civil disturbance; (ii) legislative changes; and (iii) changes in government policy, namely changes in regular conditions, or the impossibility of the government to meet its contractual obligations. Even though it is not applied to the western European countries, a guarantee programme set up by the World Bank, which is designed to cover risks which the financial market cannot bear (except by increasing the project costs substantially), and which covers the obligations of the government, as expressed in the contract with the concession company should be mentioned here. The main characteristics of this guarantee are described in the box below.

World Bank partial risk guarantee programme

This guarantee programme, which is appropriate for the funding of projects such as those involving a concession contract, covers the obligations of the government as expressed in its agreement with the private investor (such as a concession company). This guarantee makes it possible to ensure payment of the debt to lenders, in a case where payment default is the result of non-compliance by the government with its obligations. **In the concession domain, the governmental obligations in question are typically, for example, maintenance of the toll charges mentioned in the concession contract, obligations relating to a minimum traffic threshold, or risks associated with monetary conversion (time scale, degradation of macro-economic conditions, legislative changes linked to exchange rates, etc.).** At all events, it should be noted that this programme does not aim to cover the commercial risk, but merely to ensure compliance with the obligations of the public authorities as set out in the contract. This guarantee programme has already been introduced for a number of power station projects in Pakistan, and there is apparently some question of extending these guarantees to projects in Columbia and Poland.

- **Technical risks.** These are construction-related risks (completion, quality, completion dates, cost of postponement and modification of the project). These risks are borne by the concession company and/or the construction and/or operating companies.
- **Commercial risks.** Commercial risks occur due to uncertainties regarding traffic levels. Commercial risks, defined as the product of toll charge x traffic, are normally regarded as the responsibility of the concession company. However, experience shows that these risks, particularly on opening of new motorways, can be too great to be borne by the concession company alone. Traffic levels must be analysed with care, and predictions must be realistic. There is a clear relation between the establishment of toll charge, the degree of competition (which can be set by the government), and risks associated with concession company revenue.

- **Economic and financial risks.** These risks emanate from uncertainties concerning economic growth, inflation rates, the convertibility of currencies and exchange rates. They are carried by the concession company and the banks.

For example in Spain, the concession system is based on the notion of "operator risk", and the main risks (financial and commercial) are consequently borne by the concession company, apart from force majeure which is covered by the State for the amount of the investment. In compensation for this situation, the return/revenue of the concession company is not restricted.

The special case of risk sharing in Norway, where a "**partial reimbursement**" method is applied, is worthy of mention. If toll revenue exceeds initial estimates, the companies pay the excess amounts to the State, and these are used to fund other local community projects. In the opposite case, if toll revenue is inadequate, no subsidy is paid by the Norwegian Government. Nevertheless, concession company borrowing is guaranteed by the local communities (which also back the actual formation of the concession companies).

The following table illustrates the typology of risk sharing in Europe in the motorway concession domain. This table is restrictive, in that it only takes into account one type of risk sharing per country, whereas the situation can change for each concession project. However, the interest of a table of this type is that it demonstrates the **particular risk sharing position involved with a shadow toll system** (this point is addressed in detail in section II.6.2), also emphasising the **specific case of Norway and the Netherlands, insofar as technical risks are borne by the concession authority, and not the concession company, in these countries.**

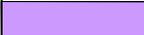
Analysis of risk sharing for road concession contracts in Europe

	Force majeure	Technical Risk	Commercial risk	Financial risk*	Concession company remuneration
		construction operation	tarif x traffic ou traffic (influencing remuneration)		
Angleterre					shadow toll
Autriche					toll
Belgique					toll
Espagne					toll
Finlande					shadow toll
France					toll
Grèce					toll
Italie					toll
Norvège					toll
Pays-Bas					shadow toll
Portugal					toll

Source : Questionnaire issued to DERD in May 1998

Note * : not taking account of any State guarantees

Legend

	Risks borne by the governmental concession authority
	Risks borne by the concession company, but substantially supported/limited
	Risks taken by the concession company

II.6.2. Transfer of risks in a shadow toll system

The logic on which DBFO systems are based is not essentially financial. The primary objective is to transfer certain risks normally borne by the State to the concession company. This means that risks are borne by the entity (concession authority or concession company) best fitted to bear the risk concerned. **A direct consequence of this principle is that construction, maintenance and operating risks are borne exclusively by the concession company.** For example, penalties are automatically applied in the event of defective maintenance. Penalties are also applied if lanes are closed for an excessive length of time (during execution of repair work). On the other hand, **the commercial risk (toll income x traffic) is shared.** If the traffic level observed is greater than that estimated by the concession company, the latter receives a remuneration in excess of that planned, subject to a capping threshold, said remuneration being paid by the concession authority.

Example of public/private partnership for the construction of tunnels in the Netherlands

The Dutch Government has set up private project funding schemes for the construction of two tunnels in the west of the country. The aim is to build more tunnels than would have been possible on the basis of budget source funding only. The "Noord" tunnel was the first for which a private funding scheme was planned. This tunnel has replaced an existing bridge on the second main highway between Rotterdam and the Ruhr in Germany.

Much attention was paid to the relations between private investor and the Rijkswaterstaat, the public works department of the Dutch Ministry for Transport and Public Works. This department managed the project, and is now responsible for maintenance and operation of the tunnel on behalf of the private investor. Compliance with national quality standards for main infrastructures has been ensured in this way. Sharing of construction, maintenance and operating risks between the investor and the government public works department was essential. The private sector in the Netherlands had no previous experience in the area of public/private partnership. It was therefore necessary to establish a risk profile to enable the investor to assess its commitments. **The objective was to limit the risk relating to total cost for the investor, by setting a maximum amount for maintenance and operation over a period of thirty years. This means that any increase in construction, maintenance and operating costs will be borne by the State. Remuneration of the investor depends on tunnel utilisation frequency. These are the main risks for the investor.** The Noord tunnel has been in service since 1992.

Source: Netherlands contribution to DERD/WERD, May 1996, for the report on "Road Funding and Organisation of European Road Administrations".

II.7 Role of the concession authority

The advantage of a toll concession arrangement is that it constitutes one of the best ways of raising and allocating funding sources, not only for motorway construction work, but also for maintenance and operation. This allocation of sources to the highway system generates a debudgetisation effect. **This does not mean however that the public authorities have no part to play. Their task is to safeguard the interests of the community (environment, safety, etc.), provide any**

additional funding which may be required, and carry certain risks which cannot be borne by the private sector.

II.7.1. Financial support

Mixed project financing is extremely frequent, as the traffic levels required to fund both operation and construction are high. Analysis of replies to the questionnaire concerning motorway concession practice in Europe clearly indicates that the States provide **strong financial support for concession arrangements**.

Government assistance for a concession is legitimate insofar as the economic utility of a project is generally greater than its return on equity. The development of infrastructures is a positive source of external benefits (time saving, stimulation of growth, etc.), which create a disparity between return on equity and socio-economic return. A concession contract involves two periods. During the first period, the concession company incurs losses and can pay no dividend, whereas the second period can be one of profit. **Support from the public sector is consequently important, in particular during the start-up phase.** The latter, during which it is sometimes difficult to survive cash-flow crises, is indeed a particularly fragile period.

Financial support from the public authorities can take various forms:

- **financial guarantees;**
- **provision of land or equipment;**
- **repayable advances** (these advances enable the concession company to cope with the financial expense of borrowing during the construction period, until the start of the operational period);
- **allocation of revenue from an infrastructure under concession and already in operation;**
- **participating capital loans (as in the case of Spain: see box below);**
- execution of improvements of a nature to facilitate access to the facility covered by the concession.

Public authority financial support for the concession sector in Spain.

Government aid procedures in force at the present time in Spain are as follows:

- **Repayable advances:** the State advances a given sum which must be reimbursed subsequently by the concession company.
 - **Participating capital loans:** these are sums which the State advances for the construction of the motorway, and which must be reimbursed by the concession
- .../...

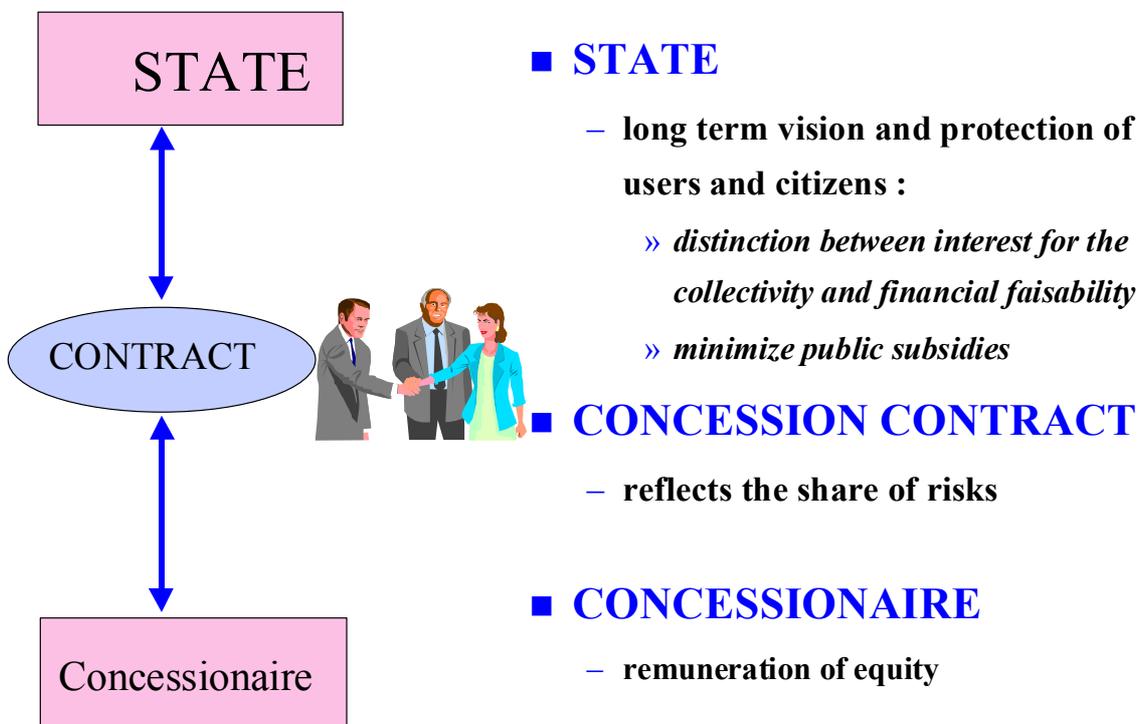
company in accordance with a pre-established schedule (defined in the specifications, or covered by a bid, and consequently stipulated in the contract). This schedule indicates details of reimbursement to the State by the concession company, on the basis of specific traffic conditions (for example, payment of a given sum according to the traffic level, provided this exceeds a certain threshold).

Intervention by the public authorities is not neutral with respect to the behaviour of the private sector, as it implicitly involves a certain degree of risk sharing.

II.7.2. Watchdog for the interests of the community

The public authorities naturally also have a role to play in terms of **protection of the environment, safety, and services provided for road users**. This is only achieved if **clearly set out in the specifications** on the one hand, and provided the concession is **regularly monitored by the concession authority** on the other. The State must also **take care to integrate the motorway concession system in the global national road network, taking account of priorities in terms of national development and improvements**.

The following graph identify the main objectives of the concession authority and concession company linked by a concession contract.



II.7.3. Risk coverage

It is appropriate to emphasise the **particularity of the road sector compared with other sectors** such as the energy sector, **with regard to risk coverage**. Uncertainty regarding demand (estimated future revenue) is relatively low in the electricity domain, as the State or local communities undertake to purchase a minimum quantity of production at a pre-arranged price. In the road infrastructure sector however, the concession company has no such guarantee on the part of the public authorities, and consequently carries more risks. This additional risk coverage increases the total investment cost.

The role of the public authorities must be to reduce risks, firstly by introducing a clear, stable regulatory and tax framework, and secondly by concluding a balanced contract so as to avoid imposing excessive charges on the concession company (tax, exorbitant concession fee, etc.). A number of reasons behind the difficulties encountered in setting up concession systems in Europe are detailed in the box hereafter.

U.S. tax system relating to motorway concession systems

Toll system acceptability in the U.S. is relatively low. The American consumer knows that he or she already pays for road investments through motor spirit tax, and is not ready to pay a toll for road usage. On the other hand, **the low level of private sector participation in the superhighway concession domain is not solely the result of problems with funding superhighways by means of toll systems.**

The tax code adopted in 1986 substantially reduced private sector participation in the funding of road infrastructures in the U.S. in two ways, firstly by limiting the maximum period of concessions in certain cases, and secondly by refusing tax exemption for the debts of private concession companies. However, the Federal Government has just initiated a pilot programme covering fifteen projects for which the above-mentioned constraints have been removed. Nevertheless, given the current priorities of the U.S. Government, which is aiming first and foremost at reducing the budget deficit, it does not appear that this pilot programme reflects the tendency envisaged.

Projects where private sector funding participation is strong are therefore limited (Dulles Greenway, SR91, etc.). On the other hand, public organisations holding highway concessions are numerous at State level (there are numerous "toll authorities" in Texas and Florida in particular). It should also be pointed out that U.S. Government subsidies to the individual States for highway road projects date back no further than 1991.

III. EC LEGISLATION RELATING TO CONCESSIONS

Before examining EC legislation applicable to concessions, it is important to note the actual EC definition of a concession, both in terms of public works concessions (III.1.1) and service concessions (III.1.2).

III.1 EC approach to infrastructure concessions (work and services)

III.1.1 Public works concessions

The European Commission defines a public works concession in article 1d of **directive 93/37/EC**: "a public works concession is a contract having the same characteristics as a public works contract, except that the **consideration for the work comprises the right to exploit the facility only, or this right accompanied by a price**". In this way, the directive defines a concession, to some extent, as a variant version of a government contract rather than a separate type of contract. The element which distinguishes a government contract from a concession, in the meaning of this directive, is the substitution for the price set by the award procedure and payable by the adjudicating authority to the contractor, of the right to exploit the facility constructed or developed by the contractor.²⁵

Two criteria are intrinsically linked to the notion of public works concession:

- **the consideration for execution of the work is the right to exploit the facility concerned.** This is the equivalent of saying that a concession contract must include an "operation of the facility" part which is subject to remuneration;
- **a concession contract implies the need for a transfer of responsibility (namely the transfer of risks) from the concession authority to the concession company. The latter must be responsible for management of the service concerned, in this case the operation of a motorway.**

The question regarding the qualification of a shadow toll system as a concession (in the EC sense) remains open. Where the price is borne integrally by the adjudicating authority, and the risks are limited to a material extent (by the capping mechanisms discussed above), it could be assumed that there is then no operational risk for the concession company.

It should however be emphasised that **a concession is not merely and intrinsically linked to the management of a public service, or to an activity of general interest**, in the EC view.

²⁵ See "Point of view of EC authorities regarding delegated management", J.L. Dewost, Director General of the EC Legal Department, Conference on "Delegated public service management", 14-15 November 1996.

III.1.2 Service concessions

The decisive criterion adopted by the European Commission to distinguish public works concessions from service concessions, is whether the contract covers the construction of a facility for and on behalf of the concession authority, or not. Thus, any contract covering the operation of an existing infrastructure corresponds to a service concession.

III.2. EC regulations applicable to infrastructure concessions

The award of a concession is mainly subject to the rules and **principles of the EC Treaty and directive 93/37/EC**. Neither directive 92/50/EC relating to public service contracts, nor directive 93/38/EC relating to contracts issued by entities operating in the water, energy, transport and telecommunications sectors, contains any specific measures relating to the award of concessions. **The EC green paper on government contracts (1996), communication SEC(97) 1673 dated 25/09/1997**, which clarifies the European Commission's recommendations regarding the application of rules of fair competition to projects covering new transport infrastructures, as also **EC jurisprudence** on this subject, in particular regarding application of the principle of equal opportunity, throw further light on applicable regulations.

III.2.1. Rules and principles of the EC Treaty

The following articles of the EC Treaty must be known to public administrations awarding infrastructure concessions:

- article 6 (paragraph 1) prohibiting any discrimination on the basis of nationality;
- articles 48, 49, 52 and 59 relating to discrimination based on nationality. **Any regional or national preference is prohibited by these articles. The principle of equal opportunity for all candidates with respect to the award of a concession must be followed under all circumstances;**
- article 86 relating to the behaviour of a company holding a dominant position;
- article 90 relating to competition within the European Union;
- articles 92 and 93 relating to governmental aid. Subsidies granted by public authorities to concession companies, whether the latter are State-controlled or private, are liable to fall foul of the principle of incompatibility of such aid with the

- Common Market, insofar as they affect intra-community trade and are liable to distort competition.²⁶

III.2.2. Council directive 93/37/EC of 14 June 1993 ("public works directive")

This directive makes **the award of motorway concessions subject to the obligation of prior publication. Once this obligation has been met, in accordance with prescribed procedures, the bids submitted can be negotiated freely.**

The contracts targeted by the "public works directive" are those having the following characteristics:

- **the amount of the contract must be 5 million ECU or more** (excluding VAT). The equivalent value of the this amount in national currencies is revised every 24 months, as from 1 January 1993 (article 3 of directive 93/37),
- **the purpose of the contract is the execution and/or design of work involving the following professional activities: building, civil engineering, installation, improvement and completion, namely the construction of a facility, by whatsoever means, which meet the needs stipulated by the adjudicating authority** (article 1, paragraph a of directive 93/37),
- **the contract is one which the State or its government departments, other than departments of an industrial or commercial character, proposes to conclude, where the remuneration of the contractor consists, in all or in part, in the right to operate the facility** (article 1, paragraph d of directive 93/37).

The obligation is to make known, by means of an announcement, the intention to award a concession. The adjudicating authorities are obliged to open the contract to competition at European level, by publishing a concession announcement in the form specified in directive 93/37/EC, in the Official Journal of the European Communities (OJEC). This announcement must not exceed one page of the OJEC, or approximately 650 words. A model public works concession announcement is provided in Appendix 5 to directive 93/37/EC, and is reproduced in the following box. Publication expenses are borne by the European Communities. The time allowed for submission of bid applications may not be less than 52 days from the date of transmission of the announcement to the OPOEC (Official Publications Office of the European Communities). This measure applies whether the potential concession company is state-owned or private.

²⁶ See "Point of view of EC authorities regarding delegated management", J.L. Dewost, Director General of the EC Legal Department, Conference on "Delegated public service management", already quoted.

The selection procedure for the concession company is free (with the concession authority engaging in a negotiated procedure), it being understood that the obligation to indicate criteria for the award of the concession in the announcement, will necessary facilitate verification of the choice of concession company by any court before which the matter may be subsequently brought.

MODEL PUBLIC WORKS CONCESSION ANNOUNCEMENT

1. Name, address, and telephone, telex and fax numbers of the adjudicating authority.
2. a) Place of execution.
b) Purpose of the concession: nature and extent of the services.
3. a) Deadline date for submission of bid applications.
b) Address to which said applications are to be sent.
c) Language(s) in which applications are to be drafted.
4. Personal, technical and financial conditions to be met by applicants.
5. Criteria to be used for award of the contract.
6. Minimum percentage of sub-contracted work, where appropriate.
7. Other information.
8. Date of issue of the announcement.
9. Date of reception of the announcement by the OPOEC.

Source: OJEC No. L199/81

Appendix V to directive 93/37/EC

The types of contract concerned are those "where the remuneration of the contractor comprises, in all or in part, the right to operate the facility", namely **concessions, lease and similar contracts**, even if part of the remuneration is represented by a price paid by the state-owned or semi-public entity. Only contracts concerning the execution of "any building or civil engineering work" are concerned, although these rules are not applicable to the sectors excluded.

Contracts issued in turn by concession companies are therefore subject, prior to their issue, to advance announcement. Exceptions to this rule of mandatory announcement concern contracts concluded between a consortium formed to obtain the concession, and members of the consortium or affiliate companies. The expression "affiliate companies" covers companies under the dominant influence of another company, this influence being assumed in the case of majority voting or capital control, or clauses providing for appointment of more than half of the management, supervisory or governing body. There is no obligation of prior announcement in four cases:

- firstly, where the work can only be contracted out to a single sub-contractor, for technical or artistic reasons, or reasons relating to protection of exclusivity rights,
- secondly, in the event of absolute urgency, incompatible with the time required for prior announcement, and outside the control of the entity intending to conclude the contract,
- thirdly, in the case of additional work, where aggregate contracts for additional work may not exceed 50% of the amount of the main contract,
- finally, in the case of work involving the repetition of similar work already executed. The new work in this case must nevertheless be in conformity with the basic project, and the contract procedure must be initiated within three years. The first contract must also have been issued following an open or restricted procedure, and the possibility of an extension must have been indicated in the initial call for tenders.

The specific problem of backing by collateral. It is not always possible to cover the construction and operating costs of a motorway from toll revenue, where traffic levels are low or costs abnormally high. Furthermore, in all European countries where toll systems are used to fund road projects, initial public support has been necessary for the development of the motorway system. This support has frequently taken the form of equalisation between the resources of existing and new motorway sections. **This raises the problem, at EC level, of backing by collateral (frequently wrongly confused with the extension of concession periods),** namely the utilisation of toll revenue from amortised motorways to fund new sections. The backing method is used in a number of European countries. However, **this method should be employed with caution. Backing, which can be envisaged where projects are not financially profitable during the period of the concession, must be made compatible with certain EC principles, such as equal opportunities for all candidates in a call for tenders.** Application of directive 93/37/EC does not signify however that the backing technique may not be adopted. **Nevertheless a backing situation must be explained in order to avoid closing the market.** Finally, backing by extension of a concession contract constitutes a hidden subsidy in any case, and as such, is a practice which will have to be changed in view of **EC rules concerning governmental aid.** We include some suggested lines of thought for an approach to the solution of this problem, in the conclusion to this report.

III.2.3. Green paper on government contracts: EC communication on rules of fair competition and EC jurisprudence

The European Commission green paper on "Government Contracts in the European Union", presented on 27 November 1996, also concerns concessions and similar contracts (paragraph 3.25). This includes the following observation in particular: "looking to the future, and with a view to further strengthening this opening to competition, rules concerning the forms of competition for the award of exclusive rights to the provision of public services, via a concession system, could be

envisaged". The aim of such proposals is to "facilitate access to the public service markets for new operators, whether state-owned or private, and introduce a dynamic business approach on the part of existing operators, which matches user demand more closely".

Mention should also be made of EC communication SEC(97) 1673 dated 25/09/1997, which clarifies the recommendations of the Commission regarding the application of rules of fair competition to new transport infrastructure projects.

The European Commission is currently preparing an **interpretative communication concerning concessions established under EC government contract law**. As a preliminary to the preparation of this document, the EC issued a detailed questionnaire to all Member States (via their government contract consultative committee representatives) at the end of 1998.

III.3 Lines of thought concerning the award and monitoring of motorway concessions

III.3.1 Review of current difficulties encountered by national road administrations in the concession domain

The following table summarises the difficulties encountered at the present time by European road administrations, where they have recourse to concession contracts. These difficulties have been grouped under five headings, each corresponding to a separate step in the creation of a project concession contract. These steps are as follows:

- a) decision in principle to set up a concession (concession or no concession?),
- b) drafting of the concession contract,
- c) award of the concession,
- d) monitoring of the concession,
- e) modification of the concession contract.

It appears that **the majority of difficulties are encountered** with step 1 or 2, namely **prior to award of the concession**. The public authorities have the **difficult task of concluding a concession contract for a project which satisfies the needs of the public community before all else, but which is also sufficiently attractive to the private sector**. The second difficulty which is frequently encountered, and which is linked to the first, relates to the **sharing of risks between the concession authority and concession company**.

**MAIN DIFFICULTIES ENCOUNTERED BY EUROPEAN NATIONAL ROAD ADMINISTRATIONS
IN CONNECTION WITH THE INTRODUCTION OF
INFRASTRUCTURE TOLL CONCESSION SYSTEMS**

Difficulty encountered	Belgium (Flemish region)	Spain	France	Greece	Portugal
1. Decision in principle to set up a concession (concession, yes or no?)		<ul style="list-style-type: none"> - Difficulty associated with the need to obtain a concession package with an adequate return on equity - Difficulty associated with traffic predictions 	<ul style="list-style-type: none"> - Difficult choice between the weight of social disutility and financial feasibility 	<ul style="list-style-type: none"> - Lack of private sector interest in the project (traffic level too low) 	<ul style="list-style-type: none"> - Identification of appropriate concession dimension - Evaluation of social acceptability of toll system for the project - Difficulty of traffic forecasting for 30 years
2. Drafting the concession contract		<ul style="list-style-type: none"> - If return on equity is inadequate, identification of correct formulae for State contribution to the project 	<ul style="list-style-type: none"> - Limitation of risks borne by concession companies (semi-public) 	<ul style="list-style-type: none"> - Determination of risk sharing 	<ul style="list-style-type: none"> - Risk sharing (also associated with traffic, purchase of land and the environment)
3. Award of concession contracts		<ul style="list-style-type: none"> - Difficulties with evaluation of financial studies 	<ul style="list-style-type: none"> - Explanation of different risks 	<ul style="list-style-type: none"> - Incomplete legal framework (necessary ratification of the concession contract by Parliament, causing delays) 	<ul style="list-style-type: none"> - Agreement on improvements to feasibility studies demanded by the State - Sharing of risks (force majeure and public protestation against toll system) and agreement on process of contract supervision
4. Monitoring of concessions	<p>Low traffic level on opening of Liefkenshoek tunnel. Conflicts between State and concession company, the latter complaining that the State has not built a supplementary link (The State has taken over the tunnel, and is currently making the loan repayments)</p>	<ul style="list-style-type: none"> - No problems encountered 	<ul style="list-style-type: none"> - Unbalanced information between concession authority and concession company - Control of construction costs 	<ul style="list-style-type: none"> - Difficulty associated with control of quality of work 	<ul style="list-style-type: none"> - Absence of quality control system - Problems of communication between the State and concession company

5. Modification of the concession contract		- Legal framework sufficiently clear (articles 24 and 25) but negotiation with concession companies still difficult	- Difficult application of legal framework as relating to backing/extension		- Maintenance of level of service - Renegotiation of financial clauses - Concession period
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Source: Replies to questionnaire issued to DERD in April 1998

**MAIN DIFFICULTIES ENCOUNTERED BY EUROPEAN NATIONAL ROAD ADMINISTRATIONS
IN CONNECTION WITH SETTING UP SHADOW TOLL SYSTEMS**

Difficulty encountered	United Kingdom	Belgium (Flemish region)	Finland	Netherlands
1. Decision in principle to set up a concession (yes or no?)	Need to convince the private sector of the financial viability of DBFO projects		Difficulties for the administration in adapting to a new method (shadow toll) Difficulty associated with the burden on the future budget represented by payment of the concession company	Difficulty with evaluation of risks. Agreement on construction of roads connecting with tunnel access by the State
2. Drafting the specifications/concession contract	Difficulty associated with very rapid implementation of contracts High transaction costs		Difficulty associated with rapid implementation of contracts Difficulty with adaptation of the British model for Finland	Difficult balance between traffic forecasts and remuneration of the company by shadow toll
3. Award of concessions			No particular problems	
4. Monitoring of concession	Need for familiarisation with new supervision methods for global contracts		Insufficient experience so far at this level	
5. Modification of the concession contract		Low traffic level on opening of Diefkenshoek tunnel. Conflicts between State and concession company, the latter complaining that the State had not built a supplementary link (The State has taken over the tunnel, and is currently making the loan repayments)		

Source: Replies to questionnaire issued to DERD in April 1998

III.3.2. *Special problem of commercial risks*

With a concession, and in contrast to a simple work contract, the concession company selected by the government must bear the financial cost of the investment, as also the greater part of the commercial risk. **Nevertheless, this commercial risk is too substantial in certain cases to be carried by the concession company alone.** This occurs in particular where the project is integrated in a meshed motorway network. Under these circumstances, any change in price policy for any part of the network, even if remote from the section under concession, can have major consequences on the traffic levels recorded on this section. The level of uncertainty concerning traffic predictions for new toll infrastructures is generally high, the more so as the estimates cover a lengthy period (concession periods are customarily of the order of 30 years). **It can therefore be advisable, as we suggested in Chapter II, to control the commercial risk by measures incorporated in the contract between the concession authority and concession company (capping of the amount of toll revenue collected by the concession company, control of the rate of return of the concession company, etc.), or apply a variable concession period. Control of the commercial risk must not however lead to elimination of this risk.** On this subject, the interesting practice adopted for DBFO projects, where the commercial risk is controlled by applying a traffic band concept (see II.3.2), probably led the European Commission not to regard this type of contract as a concession.

III.3.3. *Subsidised concessions: reclassification as work contracts?*

As we have seen, the funding scheme for an infrastructure concession generally involves government aid.²⁷ A concession involves two phases: during the first phase, the concession company experiences losses, and cannot pay any dividend, whereas profit can be generated during the second phase. **Government aid to a private concession is legitimate, insofar as the economic utility of a project is generally greater than its return on equity. This type of mixed funding,** namely in the form of a public-private partnership, is extremely frequent in view of the fact that the traffic levels required to fund both construction and operation are high.

In the EC sense, the allocation of a subsidy (as is the case, for social reasons, where the toll charge applied by the concession company is below that initially established) **should not transform the concession contract into a work contract, inasmuch as the concession company still carries the operating risk.** Thus, insofar as a subsidy does not impinge on the basic principles of a concession as recapitulated above, namely the assumption of construction and operating risks by the concession company, which is then remunerated accordingly (and where the subsidy does not raise doubts regarding the globality of the contract, which is not restricted to work only), a concession cannot be reclassified as a work contract.

²⁷ Funding without recourse to such aid is only very rarely observed in the road infrastructure project funding domain.

III.3.4 Backing and backing-extension: funding road infrastructures which are profitable in socio-economic terms but not financially balanced

In numerous European countries which use toll concession systems, backing and backing-extension methods have been used in the past for the extension of existing motorway networks.

For example in France, backing a new motorway section with an existing concession has been accompanied by extension of the global concession period, in order to achieve a financially balanced situation for the new, combined entity.

In Spain concessions have been extended in exchange for new motorway construction, and also on occasions, to offset reduced toll charges. The maximum concession period was thus extended from 50 to 75 years by the law of 30/12/1996, in exchange for a reduction in toll charges. These were reduced to the "European mean" of about FF 0.40/km.

A review of EC legislation has identified the limits of such practices, but at the same time the existing degrees of freedom. EC measures do not impede free selection of a concession company by the public authority. However, they do imply genuine competition, on the basis of the conditions set out in the published announcement, as also equal opportunities for candidates under the terms of the EC Treaty. In practice, this obligation to ensure equal opportunity for all candidates raises doubts concerning continued funding of toll links by means of backing-extension arrangements, although backing is accepted by directive 93/89 (which sets a framework for vehicle taxes, and tolls and right-of-use fees collected for the utilisation of road infrastructures by heavy goods vehicles exceeding 12 tonnes). It is in fact difficult, or even impossible, given the numerous parameters to be taken into account (traffic density, changes in charge rates, etc.), where even minor variations can induce substantial differences in income, to compare a bid involving a subsidy, with another based on extension of an existing concession.

It is consequently probable that **new concessions will be awarded on the basis of isolated contracts** (by comparison with the addition of a succession of new sections to an existing concession, the whole being covered by a single contract).

In this context, and where government assistance is necessary to achieve a balanced financial situation, two techniques appear possible:

- the first involves a "package", where an existing facility and new facility are placed under concession, applying a subsidy drawn from a fund source;
- the second involves explicit allocation of a subsidy, based on a fund provisioned from revenue from existing concessions. This second solution corresponds to that adopted in the air transport sector, where an equalisation fund, provisioned from the profitable lines, is used, following a call for tenders, to contribute to funding "national development" lines.

IV. SUMMARY

IV. 1 Summary of road infrastructure concession practice: differences and similarities between European countries

The first point to note is that a wealth of experience exists in Europe in the area of motorway concessions: **out of a total of 51,242 km of motorway, 17,009 km are under concession (33%), of which 16,356 km under toll and 653 km under shadow toll.** European experience in the motorway concession domain is in fact recognised world wide.

This wealth of experience should not however hide the diversity of the systems introduced by the various road administrations. Concession systems differ firstly in terms of the respective roles of the concession company and the public authorities. For example, we have shown that concession companies in Norway and the Netherlands have terms of reference which differ substantially from those in other European countries. Differences from one country to another are also encountered, to a lesser degree, in the **sharing of risks between concession authority and concession company.** **This question of risk sharing indeed represents one of the major difficulties for road administrations when setting up concession projects.** **It should be noted here that the increasingly dense motorway network mesh is also generating difficulties in the area of commercial risk attribution.** The increasing degree of interrelationship between motorway sections under concession within the same network, is making it more and more difficult for the concession companies to carry the commercial risk alone, in view of the fact that traffic levels can vary considerably according to commercial policies defined on an individual basis. Consequently, **the public authorities will be required to play a regulatory role to a progressively greater extent.**

Formulas for determining toll charges also differ throughout Europe ("price cap" method in Italy, traffic band method in the United Kingdom, etc.). Each of these formulas corresponds to a particular level of risk sharing, and is consequently of genuine interest for all concession authorities in this regard.

There are also differences with respect to **concession company selection criteria.** **EC legislation only calls for the obligation of prior announcement for the award of motorway concessions. Once this obligation has been met in accordance with prescribed procedures, bids submitted can be freely negotiated.** The criteria most frequently quoted by road administrations are **the amount of the public subsidy required, the credibility of the financial arrangement, the technical quality of the project, operating strategy and price policy, and the reputation of the concession company** (inclusion of a construction company amongst its shareholders, etc.).

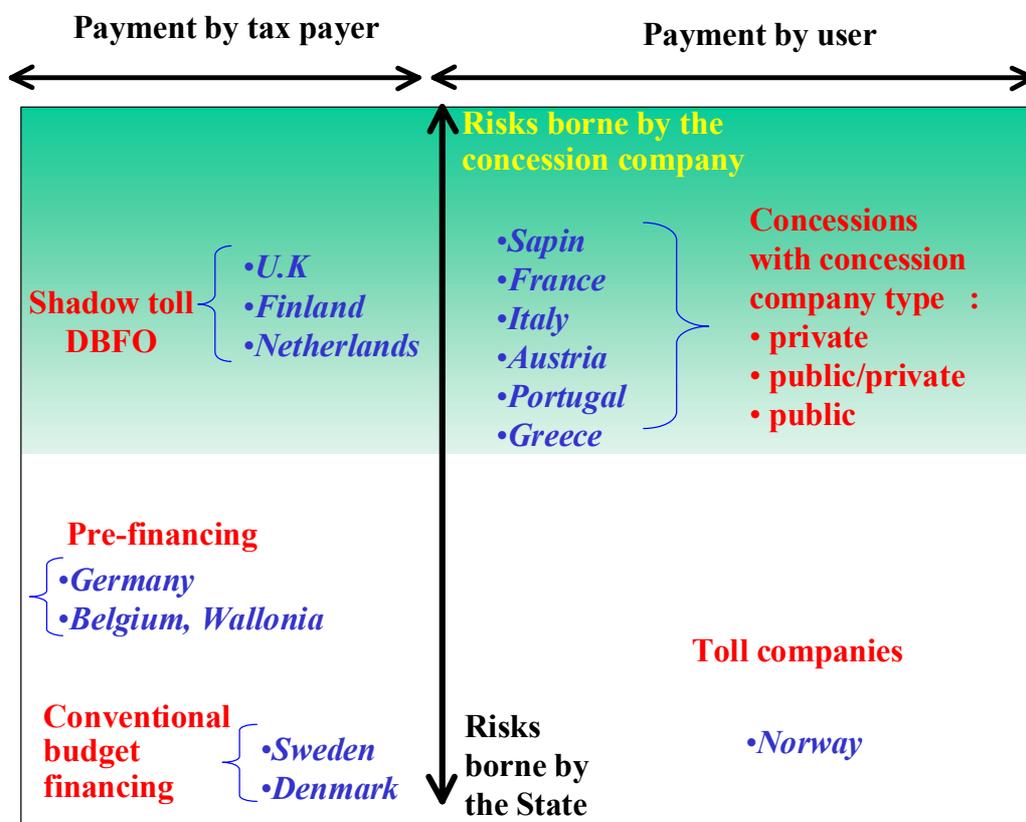
It also appears that, **out of a total of 17,009 km of motorway under concession, 12,461 km are managed by the public sector (73%), and 4,548 km by private companies (27%).** There are currently 63 state-owned and 28 private concession companies in Europe. **The preponderant position occupied by state-owned companies in the motorway concession domain in Europe is an aspect which should be borne in mind.**

While the functions of toll systems are both numerous and diverse – channelled of demand, regulation, funding, internalisation of external effects, etc. – it appears that road administrations are increasingly confronted with **the problem of the social acceptability of road**

tolls. This depends on five main factors, namely the amount of the toll, collection method, enhancement of user service, presence of free alternative routes, and the possible existence of taxes already allocated to the road sector.

The following graph situates concessions with respect to other types of funding used in Europe (budget, private interim funding, etc.) according to two criteria, these being payment by the user or tax-payer, and the sharing of commercial risks. Two principal conclusions can be drawn:

- the main criteria used to characterise a road infrastructure concession are the globality of the contract, and the sharing of risks between the concession authority and the concession company. A concession is of interest to the public authorities insofar as the concession company assumes global responsibility for the investment and its subsequent management, and provided a genuine transfer of risks to the concession company occurs. Indeed, the fact that operating expenses are just as substantial as construction costs is frequently overlooked. On average, operating costs reach about 75% of construction costs after 35 years (normal period for a motorway concession);
- as regards definition of a concession, there is a borderline zone (shown pale-green in the following diagram) where there is no real consensus concerning the nature of contracts (for example, a shadow toll contract involving substantial limitation of the risks carried by the concession company).



Furthermore, we consider it important to draw attention to the problem of assumption of the commercial risk (toll charge x traffic) in a concession context. In contrast to a simple work contract, the concession company selected by the government bears the financial cost of the investment and carries the greater part of the commercial risk. **Nevertheless, this commercial risk is too great in certain instances to be carried by the concession company alone.** This is the case in particular where the project is integrated in a meshed motorway network. In this situation, any change in price policy for any part of the network, even if remote from the project under concession, can have major consequences on the traffic levels recorded on the latter. The level of uncertainty concerning traffic predictions for new toll infrastructures is generally high, the more so as the estimates cover a lengthy period (concession periods are customarily of the order of 30 years). **It can therefore be advisable, as we suggested in Chapter II, to control the commercial risk by means of mechanisms incorporated in the contract between the concession authority and concession company (capping of the amount of toll revenue collected by the concession company, control of the rate of return of the concession company, etc.), or to apply a variable concession period. Control of the commercial risk must not however lead to elimination of this risk.** On this subject, the interesting practice adopted for DBFO projects, where the commercial risk is controlled by applying a traffic band concept (see II.3.2), probably led the European Commission not to regard this type of contract as a concession.

IV.2 Role of concession authorities

The role of concession authorities is essentially to safeguard the interests of the general public, while introducing incentive mechanisms for the concession companies.

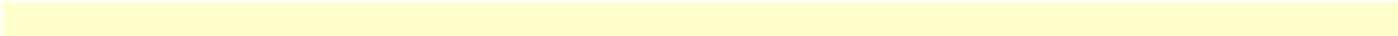
The increasingly frequent recourse to private funding for the execution of motorway concession projects must not lead to a withdrawal of governments from the management of road systems. **This study has in fact demonstrated the importance of the role of the concession authorities in the successful implementation of a concession project,** whether upstream (project identification, and socio-economic studies to measure the interest of the project for the community), or downstream for drafting specifications, negotiating with the candidate concession company, and monitoring of the concession up to its termination. It is also important to remember that **it is only the socio-economic return of a project which provides a relevant indicator of the advantage of an investment for the community.**

The feasibility of a concession can be quantified on the basis of the following three factors:

- **the funding constraint** which restricts the possibilities for achieving economically profitable investments;
- **the allocation of resources**, collected from the user rather than the tax-payer, leading to a preference for investments which can be funded to the detriment of other solutions which are more advantageous in terms of the economic results for the community, but which ensure their feasibility:
- **the toll dissuasion effect**, which reduces the economic advantage of the development programme.

The increasingly frequent use of private funding must be taken into account when defining the training required by personnel responsible for monitoring concessions. The financial and legal aspects have now taken on a degree of importance such that they must form a genuine part of the basic knowledge of concession authority personnel.

Finally, it should not be forgotten that, in addition to its task of safeguarding the interests of the community, the concession authority (government) must also concern itself with increasing the awareness of citizens, whether they are users or not. Both for implementation of the "user-payer" principle and for the conclusion of a concession contract for a project with the private sector, it is of primordial importance, in order to ensure the social acceptability of their decisions, that the authorities take great care to inform the public beforehand of the reasons for their choice. This has the added advantage of establishing a transparent environment, while associating the public with government decisions to a significant degree.



ANNEX 1

QUESTIONNAIRE ON THE PRACTICE OF HIGHWAY CONCESSIONS IN EUROPE

(sent to all the highway administrations
in April 1998)

QUESTIONNAIRE FOR THE DERD/WERD ON HIGHWAY CONCESSIONS

Objective of this questionnaire. *Following the WERD meeting in Vienna and the DERD meeting in Berlin (on 11-20-97), France was asked to continue the report entitled « Road financing and Organization of Road Administrations in Europe » by carrying out an analysis of the highway concessions. This questionnaire aims at better apprehending the practice of concession in the road sector. The set of questions listed below cover three aspects: (i) the experience of your country in concession; (ii) the advantages/drawbacks of concessions; (iii) the social acceptability of toll. Please reply to this questionnaire before May 29, 1998. We thank you in advance.*

QUESTIONS:

1. Definition of the term « concession ». In your country, which of the following criteria must be at least met to consider there is a « concession » ?

- payment by the user (toll) or shadow toll (depending on the traffic,...)
- sharing of risks between the public authority and the concessionaire
- contract not only for the construction but also for the maintenance and operation
- works supervision not directly carried out by the State
- financing of the infrastructure without recourse to the State budget
- other essential conditions

2. Experiences in highway concession. Can you describe your practice in concession (history, km, concessionaire companies (public/private), list of the highway concessions, current trend²⁸)

²⁸ You may consider it useful to enclose a brochure or a document giving details on this issue.

3. **Which are the main expected advantages of a highway concession ?** (lower cost, respect of the deadlines, innovation, better management, earmarking, mobilization of additional resources, possibility of raising loans without weighting on the State's debt, payment of the infrastructure by the road user rather than by the tax payer,...)

4. **Which are the principal difficulties encountered by your administration :**

a) at the time of the decision of the concession

b) during the preparation of the highway concession contract

c) at the time of concession awarding

d) during the supervision of the concessions

e) when modifying the concession contract

5. **How much freedom does your administration leave to the concessionaire** (during the design, implementation, for the level of services, the tariff policy...) ?

6. **Among all the risks (technical risks, force majeure, financial risk, commercial risk.), which ones do you think are dominating** ? Can you distinguish the risks that should be taken by the concessionaire from the risks that should borne by the public authority ? Which methods do you use to remove or decrease these risks from the concessionaire?

7. **Which is currently the method followed to award in your country highway concessions?**
(in terms of advertising, setting up competition...)?

8. **What are the criteria taken into account to award a concession ?** Which weight do you give to these different criteria ? What are the essential clauses of a concession contract ?

9. **Which methods do you use to monitor/limit the profits of the concessionaire company** (price cap, rate of return regulation, ...) ?

10. **Tolling a highway section.** Distinguishing urban from the inter-urban, how would currently define the social acceptability of toll on your national highway network (please also identify trends)?

11. **Roles of toll.** What is (are) the role(s) of tolling in your country? (role of financing of the construction, maintenance, and operation, role of demand management, role of internalizing the external costs, Can you distinguish according to the cases?

12 **Do you use shadow toll in your country ?** If yes, under which conditions? According to your administration, what are the advantages/drawbacks of shadow toll ? How do you compare the DBFO system with the traditional concession implying tolling ?

13. In abroad way, **how do you foresee the implementation of highway concessions on your national network ?** (please detail)

14. Table to be completed for the year 1997 (or 1996 if figures for 1997 are not available, please then indicate the year)

Table « resources/expenditures» on the national highway network

	Amount <i>(please indicate the currency)</i>
RESSOURCES FOR THE NATIONAL HIGHWAY NETWORK	
- Budget	
- Earmarked Taxes (precise)	
- Tolls	
- others	
- Total	
EXPENDITURES ON THE NATIONAL HIGHWAY NETWORK	
- construction	
- rehabilitation/maintenance	
- staff	
- others (precise)	
- Total	