THE USE OF PERFORMANCE PARAMETERS IN HIGHWAY CONCESSION CONTRACTS

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ABSTRACT

The concession for the operations of highway infrastructure in Brazil generated three different models of contracts contemplating different goals and models. An increased shift of responsibilities of the management of the portion of the highway for which the concession is granted to the private partner can be observed. This movement has been accompanied by a change in the structure of regulation and monitoring of contracts, affecting particularly strongly the standard of performance parameters used. In the first contract model these parameters were used to check the implementation of services step-by-step to verify the results with a second model, but the verification of the physical structure of the highway remains limited.

Keywords: highway concession. Performance Parameters

1. INTRODUCTION

According to the Brazilian Association of Highway Concession Holders - ABCR (2012), at the end of 2011, there were 55 highway concession contracts covering 15,365 km of highways with 283 toll plazas installed that reported 1.5 billion vehicle users, generating sales of almost R$ 13 billion. Investments were about R$ 3.8 billion, operating expenses totalled R$ 3.9 billion and R$ 2.2 billion was collected in taxes. Approximately 433 million vehicles passed through the toll plazas on the highways granted and administered by the federal government and, of these, 36% were classified as cargo vehicles.

These numbers are impressive! With 61% of the freight transportation matrix (CNT, 2012) highways are critical to the country's development and will need increasingly significant investments for their maintenance and expansion. This need for resources has justified the

implementation of various financing mechanisms in order to fund maintenance, preservation and expansion of system capacity. The decision to grant concessions as a source of funding for infrastructure also reflects the prevailing belief that the private sector would provide more agile and efficient management of the assets, including the implementation of services of conservation, rehabilitation and maintenance and the implementation of improvements and new benefits to users.

The basic definition of a concession is that it represents the authorization or privilege that the government grants a private entity that operates a service, a good or a public utility economically, as a monopoly or not. Depine (2010) writes that with the granting of public services or public works, the State delegates to the concessionaire running a public service or a project that is its responsibility; it is a portion of the powers, rights, benefits or utilities identified by the Administration and is transferred to the concessionaire.

The grant process is complex, multifaceted and can extend beyond the limits originally planned for transportation infrastructure. The commercial aspects and market philosophy intrinsically generate a demand for continuous regulation of the development of the contract and partial results achieved, besides the need for permanent and on-going verification of the safety conditions of the highway and the flow of traffic.

The concessions for infrastructure projects are characterized by long-term contracts as a way to make the contracts economically viable with rates tolerable to highway users. During their term, these contracts extend beyond political cycles of government, covering various administrations and alternating groups with different socio-political concepts. These variations can also reflect the changing expectations and views of the essential projects for the economic development of the country.

Thus, given the alternating characteristics of government action coupled with the change of the general concepts of the contracts and terminology of contracts and rapid technological development that extend to all areas of engineering, it becomes a challenge to design a model that enables the establishment of rules and clear procedures for bidders with flexibility to respond to the technical advances and social changes that will take place over the life of the contract. All these variables give rise to a debate that fuels a process of continuous improvement.

A relevant point to this issue is the management methodology used in the concession contracts of highway infrastructure, more specifically, the definition of quality standards that should guide the action of the highway administrator and that can be checked effectively by the regulators.

The different understandings on this issue are manifested in three models of contracts already awarded by the Brazilian government that show a search for minor adjustments and fixes to the concepts adopted early in the process. They open the way to a discussion about the relevance of the models developed in relation to the proposed objectives and whether they are best suited to the reality of the country. In this sense, this article seeks to contribute to highlighting the types of performance parameters used in the processes of concession for the exploitation of the highway infrastructure and whether these are compatible with the goals established in the contracts.

The analysis is developed specifically based on the contracts promoted by Federal Government grants covering 13 concession contracts signed between 1994 and 2009 addressing the issue of technical regulation without considering financial or legal aspects that

are also present, even though these areas have a large inference in and among themselves such that in some points of view, it becomes impossible to distinguish between them.
This article, in addition to this introduction, discusses in chapter two the contracts based on performance parameters and in chapter three, the three regulatory models contained in contracts promoted by the Federal Government. In chapter four, the conclusions and contributions to technical regulation are developed.

2. CONTRACTS BASED ON PERFORMANCE PARAMETERS

The use of performance parameters in concession contracts is a growing practice in almost all countries that have made the shift of execution of public services to the private sector. According Isquierdo and Vasallo (2004) the creation of objective quality indices, capable of correctly evaluating the level of service provided by the concessionaire, allows the introduction of quality parameters to the regulation of infrastructure.
These parameters serve as previously established partial goals or objectives to be met by the performer during the life of the contract. For Lima and Santos (2010), performance indicators are parameters that organize data in order to identify those actions that contribute to success or failure in achieving organizational goals. According to them, the adoption of a system of performance indicators allows both government and society to monitor progress with the implementation of certain programs and, further, has the following advantages of:

- improving the decision-making process;
- allowing an assessment of management performance;
- enabling the accountability of managers in charge of the projects;
- enabling the participation of citizens, and it
- giving greater objectivity to the civic discourse.

A similar view is presented by Câmara (2006), who states that in the regulation process, performance evaluation plays a significant role, as it has the function of informing the regulator of the situation in which public services are provided and holds the public authorities accountable to society for these services performed by private enterprise.
However, addressing the issue of implementation of quality indicators in highway concessions, Quiralte *et ali* (2007) note that it is impossible to measure all aspects that influence the quality of the highway, but that some indicators that can provide a rough idea of the quality of highway infrastructure can be identified. They argue that there should not be a large number of indicators in order to facilitate verification and reduce the cost of technical support; and it should be objective in order to reduce the number of disputes between operators and regulators. They also recommend incorporating economic advantages such as incentives for achieving quality in lieu of the imposition of fines or penalties in cases of non-fulfilment of targets.
Thus, performance parameters can be defined as values or concepts resulting from the actions of the operator that characterize the meeting of pre-established objectives and should have the relevance and simplicity that make the cost of recurrent verification viable.
Parameters can be defined by numbers that reflect the results of the actions of the operating entity on a particular element of the concession grant, such as the index of irregularity of a longitudinal pavement, or the overall results of the actions taken on several elements that could represent one of the expected benefits to the user, for example the average speed of

traffic on a particular stretch of highway. Performance parameters can also be used to represent a concept or the general level of the goods or services provided, such as the absence of plastic deformation on flexible paved lanes.

It is essential to use parameters that have values or concepts that are consistent with the objectives established in the contracts. This consistency is also related to the scope of the management activity being transferred to the operator. If the purpose of a contract is the recovery and maintenance of highway infrastructure, it is inconsistent to require, as a parameter for verifying the success of the activities implemented, a reduction in the total number of accidents or the number of fatalities in accidents on a particular stretch of road. These numbers may reflect the object of the contractor but are not provided for in the contract. Accidents and the number of fatalities that result may be caused by a wide variety of factors that are unrelated to the state of maintenance or condition of the physical elements that are part of the stretch of highway that is the responsibility of the contractor. The contractor may have executed all the services that he completed superbly well, and may still not be able to offer assurances that the number of accidents will be reduced.

In this example, external factors such as the behavior of the drivers, weather conditions and geometric design can influence whether or not the indices called for in the contract can be met. Thus, if the goal is the restoration and maintenance of the highway system, the parameters should reflect the conditions of the physical elements to be repaired and maintained and if they received from the contractor the necessary interventions to achieve the indices or concepts that characterize a successful operation as a result.

This consistency in the parameters to be established with the objectives should also reflect the concept and the allocation of risks inherent in the contract. Referring again to the previous example, when the contractor assumes responsibility for the diagnosis and the technical solution to be adopted, explicitly defining the service and the quantitative parameters to be met, the contractor should not be required to see that the conditions of the infrastructure meet specific parameters or indices that reflect the overall quality of the element. For instance, if the diagnosis and the project predicted that a particular stretch of highway should be repaired superficially by replacing the load bearing layer, any non-conformities detected by the longitudinal regularity index on that stretch may have originated in the foundation. In this case, the contractor should only be responsible for the quantitative (thickness and area) parameters and the quality of the material used, and the performance parameters should be limited to these responsibilities.

In this case, the contractor bears the risk of diagnosis and the technical solution adopted; therefore, the parameters to be demanded of the contractor, should be limited to the freedom of choice granted to the concessionaire, i.e. to choose the quality and quantity of material applied. In summary, the performance parameters to be established in the contracts must have a direct relationship to the proposed objectives and the allocation of risks. Similarly, indices and established concepts should reflect the freedom of choice granted to the management contractor for the purpose of verifying the quality of the services performed, whose responsibility has been assigned exclusively to that contractor and whose performance can not be influenced by external factors that may possibly interfere with achieving the service objectives.

3. MODELS OF CONTRACTS FOR FEDERAL HIGHWAY CONCESSIONS

In the regulatory framework established by the Federal government the body of the contract is predominant and identifies the goals and highway concession model that is intended; however, it is an attachment called the Highway Exploitation Program (PER) that sets out the technical model to be followed, with detailed specifications that guide the actions to be developed.

In projects already implemented, the PER divides the concession period into stages and were prepared primarily as three courses of action that take place over the concession period, namely:

- repair and maintenance;
- overall conservation, and
- improvements and expansion of capacity;

These courses of action, even when they occur simultaneously and interact with each other to a significant degree, provide an overview of the activities that are inherent and essential for the implementation of contracts.

The first course of action is the repair and recovery of the roadway, with the implementation of emergency services to establish minimum conditions of safety for the user, along with a more complete study of the condition of the infrastructure. This study allows for the preparation and execution of projects aimed at complete recovery of the highway for full use. Following this course are the maintenance services that are designed to address the element allowing the road to remain fully able to function throughout the duration of the contract.

The second course of action relates to services classified under general conservation, those that are carried out to maintain the conditions for the use of each element of the highway. In general, these are small-scale services and made daily, either scheduled in advance or not, as a response to user wear and tear or weathering.

The third course of action relates to the work to improve highway conditions or add highway capacity. This should reflect the needs of the users and the roadside communities, adjusting to the new local reality or fixing problems detected in highway construction services that go beyond maintenance and provide technical upgrading of the highway.

Another recurring portion of the contracts refers to the grouping of elements that constitute the physical highway infrastructure by establishing the individual expected outcomes for each phase of the contract. In the contracts being analyzed these include:

- Paving;
- Highway signage and safety devices;
- General engineering structures;
- Special engineering structures;
- Right-of-way and median strip;
- Embankments;
- Lighting systems; and
- Buildings.

The junction of these two classifications allows an understanding of the technical issues of concession projects. For each course of action and each element of the highway provided

for, the related specifications that demonstrate the view of contract against the partial objectives to be met can be found.

As a complement, operational structures and traffic management services covering all services provided for users and the implementation of systems to identify events that occur along the stretch of highway, speeding a resolution and the restoration of normal traffic, are called for. This operating system is directly related to the courses of action, also working toward supplying them with the information they need to set their priorities.

The concession projects promoted and regulated by the Federal government already have used three contract models whose main features, from the angle of technical regulation, are described below:

3.1. First Model

The first round of concessions implemented by the Federal Government took place in the 1990s and included five stretches of preexisting highways as shown in Table 1 below:

Table I - Grants under the First Contract Model

Highway	Length (km)	Referred to as:	Contract Start	Duration (years)	Toll Plazas	Tolled vehicles in 2011
BR 116 between Rio de Janeiro/RJ and São Paulo/ SP	402.1	Via Dutra.	3/1/96	25	7	84,776,430
BR 101/RJ – President Costa e Silva Bridge	13.2	Rio - Niterói Bridge	6/1/95	20	1	27,326,028
BR 290 between Guaíba/RS and Osorio/RS	121	Osório - Porto Alegre	7/4/97	20	3	21,268,388
BR 040 between Rio de Janeiro / RJ and Juiz de Fora/MG	180.4	Rio - Juiz de Fora	3/1/96	25	3	16,872,510
BR 116 between BR 040/RJ and Além Paraiba/MG	142.5	Rio - Teresopolis	3/22/96	25	1	8,364,808

Source: www.antt.gov.br

The contracts have similar basic concepts, goals and objectives. The objective of the contract highlights the purposes to be achieved. As an example, the operating agreement for the Via Dutra states: "Objective: The objective of this contract is to rehabilitation, strengthening, monitoring, improvement, maintenance, conservation and operation of the BR 116/RJ/SP Highway in the stretch between Rio de Janeiro - São Paulo, and respective access points."

The technical conditions for the maintenance and operation of the portions granted are defined in the Highway Exploitation Program (PER). Based on the experience of the national highways managing agency at the time, the now defunct National Department of Roads and Highways - DNER, the PER defines which projects will be carried out and when they will be executed throughout the contract period, with an estimate of the expected useful life of each element and its replacement or an intervention for its rehabilitation.

Using the same example, the definition of items is:

- scope of services, where the services to be performed, the areas covered and the quantities estimated are established;
- implementation methodology, where the criteria and minimum requirements for the development of services and execution of work planned over the concession period are defined.

The understanding that the relationship is defined as contracting party x contracted party is shown in the PER regarding the Rio - Teresopolis concession, where it says as follows: "THE EXPLOITATION PROGRAM addresses the problems and indicates what to do, how to do it and when to resolve them by setting schedules and physical quality standards defined based on the criteria to be followed by the INSPECTION. "

It is clear, therefore, that the actual management of the contract was established prior to signing the contract, leaving the Concessionaire to handle only the execution of the scheduled projects. The management autonomy granted to the operator is limited to the quality of the work and services carried out. Each service unit modified, increased or reduced during the execution of the contract shall be previously submitted to the regulatory/oversight agencies, so that their effects can be considered in the economic and financial recalculation.

The quality parameters to be met by the concessionaire in performing services reinforce the question of obedience that is imposed against the operating company by the granting authority and are only used to assess the quality of the operation. The detailed technical specifications of each service and its execution are defined in each PER, limiting the field of action for the concessionaire. For some services and materials the characteristic values of materials to be used in the production of other elements or mixtures thereof are specified. The PER also defines the desired indices related to the specific characteristics of each item or service to be implemented or executed on the highway. The PER takes the form of a large normative document of the products and techniques to be used on the highway. The changes in these norms imply a process of convincing the regulatory agency and then negotiating with them.

3.2. Second Model

The second contract model seeks to transfer the management of the exploitation project to a private partner. This movement is noticeable as of the publication of the tender protocols, where it is stated "the Concession constitutes a project designed for investors who, besides having the economic-financial capacity for financing, with own funds and/or those from third parties, the works and services that constitute the Concession obligations, also have technical capacity, of their own or outsourced, to advance the execution of the works and services to be conceded and the administrative capacity to manage the exploitation of the Highway Lots."

To this end, no longer is the objective to contract a "construction project manager" to execute a previously stipulated maintenance and improvements program, but rather a private partner to invest in and exploit the highway infrastructure. The function of the contract now is stated as follows: “The purpose of this Contract is for the exploitation of the infrastructure and the rendering of public services and construction works, encompassing rehabilitation, maintenance, monitoring, conservation, operation, expansion, improvements and exploitation services as presented in the Highway Exploitation Program - PER, through the collection of tolls, of the specified Highway Lot.”

Following is a list of the highway stretches and characteristics of the concession projects that are regulated under this contract model:

Table II – Highways under the Second Contract Model

Highway	Length (km)	Concessionaire	Contract Start	Duration (years)	Toll Plazas	Tolled in 2011
BR 381 between Belo Horizonte/MG and São Paulo/SP	562.10	Fernão Dias.	18/02/08	25	Eight	67,217,043
BR 116, 376 and 101 between Curitiba/PR and Florianópolis/SC	382.3	Litoral Sul	18/02/08	25	Five	57,472,112
BR 116 between São Paulo/SP and Curitiba/PR	401.6	Régis Bittencourt	18/02/08	25	Six	46,766,912
BR 101 between the ES – RJ border and the Presidente Costa and Silva Bridge in Niterói/RJ	320.10	BR 101/RJ/Norte.	18/02/08	25	Five	26,871,124
BR 116 between Curitiba/PR until the SC-RS border	412.7	Planalto Sul	2/18/08	25	Five	11,897,538
BR 153 between MG-SP border and SP-PR border	321.6	BR 153/SP	2/18/08	25	Four	11,200,993
BR 393 between MG-RJ border and intersection with entroncamento BR 116 in Volta Redonda / RJ	200.3	BR 393.	3/27/08	25	Three	7,353,541

Source: www.antt.gov.br

In these contracts, the PER assumes the same division by phases, but also introduces targets to be met based on the technical characteristics of the highway's construction elements. For each element and in each phase of the contract, besides a Scope of Services and Executive Procedure there the Performance Parameter and the Execution Timetable are defined.

In order to establish a limit for the transfer of this management and seeking to portray a reality that has previously been observed during the prior studies leading up to the concession, the PER defines the services and the construction as either mandatory or non-mandatory. Mandatory construction consists of works and services whose dates for execution or implementation have been previously established, thereby promoting the economic-financial rebalancing of the contract pursuant to eventual deadline changes. The definition of non-mandatory works and services encompasses those whose timetables are only indicative suggestions, not requiring they be carried out, but rather that they satisfy the specified Performance Parameters.

Thus, the mandatory works and services are those that are included in the line of action related to the improvement and boosting of the capacity of the highway, and the non-mandatory services represent rehabilitation, maintenance and conservation works. Therefore, the non-mandatory services are under the supervision of the private entity. This entity is responsible for choosing which the procedures and methodologies that will be used for each element of a highway and each phase of the concession. The concessionaire defines how, where and when to intervene, according to its technical studies and analyses, respecting the concepts and values that have been defined by the PER itself.

Even though some technical norms have been referenced, including manuals prepared by the federal agency responsible for highway construction and maintenance, the performance indexes listed by the PER refer to the final product of each concessionaire's intervention, discarding step-by-step monitoring of construction activities and the verifying of the specific indexes related to the mixed materials or stages of any service not corresponding to the final product of the works or service.

Regarding paving and horizontal signage items, characteristic values were established to be observed, foreseeing an increase in quality during the first five years, as an attempt to impose a continual improvement program and aiming to ensure that the rehabilitation services encompass increasingly longer portions of the highway during each period.

For the other groups of elements, what has been defined as a "performance parameter" refers to concepts such as "absence" of certain problems or other elements being "fully functional": a general situation to be identified.

3.3. Third Model

The third contract model is characterized only in one implemented concession project and described in Table III; nevertheless, it is used as a point of reference for another four highway portions whose processes have already begun but, in October 2012, were still awaiting conclusion of the tender processes.

Table III – Concession Under Third Contract Model

Highway	Length (km)	Concessionaire	Contract Start	Duration (years)	Toll Plazas	Tolled in 2011
BRs 324 and 116 between Salvador and the BA-MG border	680.6	Via Bahia	10/20/09	25	Seven	28,710,916

In this model, the objective of the concession is similar to the previous one, being described as "exploitation of the infrastructure and the rendering of public services of rehabilitation, operation, maintenance, monitoring, conservation, implementation of improvements and boosting the capacity of the Highway System ("Concession"), within the timetable and the conditions established by the Contract and according to the Performance Parameters and minimum specifications established by the PER." It repeats the same definitions regarding the mandatory and non-mandatory services and works, the division by time and infrastructure element and the same performance parameters.

This third model is distinguished from the previous one by the following, and important, aspects:

- definition of the list of locations and stretches whose services must be carried out (minimum list of services to be carried out at the beginning of the concession period);
- adoption of a "trigger" system touched off by the volume of traffic for expanding capacity certain stretches of the highway; and
- the creation of a rebalancing discount system due to non-compliance with certain parameters.

The list with the locations previously identified in the concession tender and that already present some problematic highway infrastructure elements, even though it might seem like interference in the management of the contract, is relevant because it indicates the points that are of mandatory verification by inspectors at the end of the established timetables; the objective is to ensure minimum safety and travel conditions for users. The identification is restricted to the locations, with the concessionaire responsible for deciding what to do and how to do it.

The "trigger" for boosting capacity is a system that defines the statistics that classify the volume of traffic that requires the concessionaire to carry out works to guarantee a highway's permanent traffic flows and expected levels of service. Thus, for a single lane highway, values are defined that will determine when it is to be duplicated and, for a stretch of double lane highway, the construction of an additional lane.

If, on one hand, the established parameters for triggering the action could be the result of factors that are external to the concession, on the other hand their inclusion in the contracts as of the publication of the tender protocols requires that the concessionaire make realistic traffic projections based on a cash flow that assures that it is possible to make the investments necessary to conclude the project.

The third innovation, called the Rebalance Discount in the contract, is presented as relief for Highway System users and "does not constitute any type of penalty imposed on the

concessionaire." The contract deals with it as a system to compensate the highway user when "the public concession service rendered is in non-compliance with the conditions established in the Contract and by the PER," concluding therefore that this "should not be remunerated in its entirety."

The mechanism is based on the verification of the performance parameters relating to paving and signage, per highway portion and the carrying out of the duplication works conditioned to the volume of traffic. Non-compliance with each item, per stretch of highway, implies application of a tariff reduction index.

4. CONCLUSIONS

The use of performance parameters has been shown to be an important tool for monitoring and managing the contracts and its concept has evolved with each highway concession contact model published by the Brazilian government. The initial focus of accompanying the entire process now has given way to the checking of the results of the services that were carried out, also evidencing the gradual transfer of responsibilities from the granting authority to the private entity executing the contract.

The insertion of performance parameters in the concession contracts is important because it permits the manager (or the regulator) of the contract to verify if the proposed targets have been achieved, and the definition of which parameters will be used could have different approaches. Assuring consistency between the objectives contained in the contract with the allocation of the risks attributed to each party and the performance parameters used is of fundamental importance. Harmony between the parties is a necessary starting point for the success of the contract.

The federal highway concession contracts proffered by the Brazilian government have been characterized by their attention to the infrastructure, with the objective always being to recover, expand, conserve, maintain and operate the stretch of highway involved, initially instituting the monitoring of the entire construction process and, subsequently, taking into consideration only the results of the interventions carried out.

In practice, the process follow-up has become more difficult due to the increasingly higher number of interventions that need to be carried out over time, because of the greater number of *a posteriori* tests, reports and analyses, in which the impact of one element with unsatisfactory performance could be offset by the safety coefficients inherent in the construction process; or even by reinforcements or corrections that already had been carried out at the same time. The fact is that this step-by-step verification of the construction procedures and elements has proven to be slow and inefficient in delivering results.

The latter two contract models adopt the concept of performance parameters to verify results, being the basis for the amount of time and the amplitude of the investments necessary for the maintenance or rehabilitation of the highway infrastructure element. Nevertheless, the absence of measurable indicators in certain systems indicates a need for perfecting the process.

In these contracts, only the items related to paving and signage contain measurable indicators whose values are qualitatively progressive over time, clearly indicating the understanding that the rehabilitation/conservation/maintenance process is continuous and

requires on the part of the concessionaire a process of planning the interventions to be carried out.

One could say that the general concepts used as performance parameters represent the ideal state of a given system or element, characterizing full functioning and physical integrity. Despite this being the desirable state of the infrastructure, the conditions presented in the initial phase of the contract do not correspond to these conditions, and it is up to the concessionaire to carry out the works and services necessary to achieving the "ideal state," of full functioning of the infrastructure, which should be realized at the end of the highway rehabilitation phase — that is, at the end of the fifth year of the concession.

This combination of factors, the absence of measurable parameters and a lengthy deadline for the complete execution of the services makes it possible for the private partner to minimize its actions in the first years, concentrating efforts during the final period of this stage, with the objective being to optimize investments to be undertaken to the detriment of the quality of the services received by the users of the stretch of highway at issue.

This behavior on the part of the concessionaire imposes on the highway user two adverse realities:

- a perception of deficient maintenance of the highway system, even with toll collections; or
- increased travel time caused by traffic interruptions or a reduction in the highway's capacity due to a number of construction projects occurring simultaneously on the motorway in question.

Nevertheless, while the concession objectives are concentrated on the general state of the infrastructure, the adoption of performance parameters aimed at qualifying the state of the elements must be related to the execution deadlines, which should be short and doable, even if it is necessary to establish spatial limitations on the actions of the executing entity. Although these limits might constitute interference in the freedom of management of the concession, their absence could compromise the capacity to meet the contracted objectives. Thus, the risks of management transferred to the executing entity must be subordinated to the overall result to be obtained by the system.

The ideal condition of the systems or the components of the highway infrastructure, verified through indices or concepts, has been a usual point of reference in the concession contracts; nevertheless, the lack of intermediate targets could compromise service regularity and the implementation of a continuous improvement process of the conditions of the highways. The maintenance of these parameters in future processes should be analyzed with constriction in the temporal and spatial limits, seeking more precise and clearer verification regarding the achieving of the proposed objectives.

The use of performance parameters that seek to capture the benefits to be passed along to concession highway users and that represent the rendering of services has been one of the ways forward pointed out in surveys; nevertheless, the peculiarities of the national highways show the need for time limits along with the definition of expunging standards for verifying results.

Finally, the search for social and environmental benefits that complement the objectives that are inherent in the highway concession process is a political decision of the granting authority. This decision must be based on increasing the value of the benefits to be received

and the transfer to the concessionaire of part of the costs related to the investments, which can be compensated by productivity gains related to the exploitation of the infrastructure.

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