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**PUBLIC PRIVATE PARTNERSHIPS IN BRAZIL: a shift to the private
sector to enhance public works efficiency and sustainability**

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*To Bianca and Alice, my daughters,
the inspiring stars of my challenges,
and to Raquel, my wife, for the
understanding and support.*

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First I thank my parents for spare no effort to provide the best education to their children; to my friends and coworkers, Eduardo Nery and Marcelo de Andrade, for their support in achieving this goal successfully; to my advisor, for his dedication and corrections; and, in particular, to my wife, Raquel, for being the exemplary person I can always count on and question me.

“In law a man is guilty when he violates the rights of others. In ethics he is guilty if he only thinks of doing so.”

Immanuel Kant

“Many are stubborn in pursuit of the path they have chosen, few in pursuit of the goal.”

Friedrich Nietzsche

ABSTRACT

In modern economies, it is well recognized that the quality of physical infrastructure affects a country's productivity, competitiveness and ability to attract foreign investment. In recent years, Brazil has been striving to reduce a 15-year infrastructure gap, employing considerable amounts of public money on new projects. However, these expenditures have shown cost overruns and delays, combined with low-quality and unsustainable constructions. The general procurement and contracting Act (Law 8,666/1993) was enacted targeting to avoid corruption and determining that all tasks related to public constructions (plan, design, finance and maintain/operate) should be under State control. After the economic stabilization, new investments began to be performed and some flaws of the model created by Law 8,666/1993 surfaced. Recently, the Brazilian Federal Government developed a new legal framework (Law 12,462/2011 - DCR), trying to improve the efficiency of public constructions. Considering the worldwide trend of transferring responsibilities to private markets and seeking investors to finance infrastructure projects, there is space for even more improvements that might be achieved by stimulating public-private partnerships (PPP). The performance risks assumed by the concessionaire in PPP projects are likely to reduce the time of construction and the investment costs, besides guaranteeing a much higher quality work provided to users.

Key words: Brazilian Infrastructure. Public Constructions. Public Works. Public-Private Partnerships. Brazilian Federal Acts: Laws 8,666/1993 and 12,462/2011.

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1. INTRODUCTION

After the macroeconomic stabilization in the middle 1990s, Brazil faced a considerable economic growth that allowed its economy to become the seventh largest in the world in 2012¹. With Europe struggling, a recent analysis of the outlook for the Brazilian economy by the International Monetary Fund suggests that Brazil's economy will likely overtake France's by 2015, putting Brazil as 5th in the world after Germany and forecasting to be the fourth by 2050².

Although all this optimistic projections seemed wonderful to the Brazilian people, after the 2008 financial world crisis, some of Brazil's major deficiencies emerged, leading to a huge reduction on the economy's growth rate. And one of the major issues revealed was the country's poor infrastructure that demonstrated its incapacity to support activities that are essential to any sustainable development. So, as not building infrastructure is not an option to the country, there has been a great debate around efficient ways to shorten this infrastructure gap, as it has been proven that the government cannot by itself effectively provide infrastructure in the quality and volume requested by the economy³.

During more than a decade, most of the investments done in the infrastructure sector in Brazil, regarding transportation, energy, education, health, sanitation, security and so on, were entirely designed and sustained by federal funding and management. However, the latest level at which the Brazilian economy has reached showed that Brazil do not have all the financial resources (neither the skilled personnel in the public sector) required to expand, maintain, and operate the country's infrastructure networks. And while the overall resources needed are enormous, it is well recognized that the quality of physical infrastructure affects a country's productivity, competitiveness in export markets, and ability to attract foreign investment.

Back in the late 80's and early 90's, Brazil lived a period of instability in which no private investment was employed in the country. On the matter of infrastructure networks, all basic physical and organizational structures needed for the operation of

¹ International Monetary Fund. 'GDP report for Selected Countries and Subjects'.

Available at: www.principalglobalindicators.org/Pages/Default.aspx

² PricewaterhouseCoopers, January 2011. 'GDP projections'.

Available at: www.theguardian.com/news/datablog/2011/jan/07/gdp-projections-china-us-uk-brazil

³ Carlos Biedermann, Hazem Galal. PwC Gridlines. Spring 2013.

the Brazilian economy belonged to the government, which was responsible to solely plan, fund and operate the public works, and the only role played by private companies were supplying the Government's desired constructions and goods. And reflecting that time scenario, the procurement and contracting general Act was enacted (Law 8,666/1993), determining that all public constructions should be done in order to keep under State control the responsibilities for planning, financing, operating and maintaining the infrastructure systems.

From the time the Brazilian economy showed signs of stabilization, a series of new investments began to be performed and a series of demands for better infrastructure networks emerged. And as government expenditure rose substantially and public construction contracts multiplied, some major flaws of the model created by Law 8,666/1993 surfaced. After several years experiencing delays, cost overruns, corruption and low-quality constructions, in 2011, the Brazilian Federal Government developed a new legal framework (Law 12,462/2011 - DCR), in an attempt to solve some of these problems and improve the efficiency of public constructions.

In spite of all enhancements created by this novel Act, in this model the government keeps being in charge of planning and funding the entire project, besides operating the constructed facility afterwards. Based on this, considering the worldwide trend of transferring responsibilities to private markets, there is space for even more ameliorations that might further improve the efficiency and sustainability of public constructions in Brazil. And most of these advances might be achieved by stimulating public-private partnerships (PPP).

Therefore, this paper argues that a drive to private investors may contribute to enhance public works efficiency and sustainability. To this end, first, a brief description of the public construction model adopted by the Brazilian federal government over the past two decades will be presented, depicting the main characteristics related to infrastructure construction contracts settled by the government and illustrating some major deficiencies of the general contracting model. Thereafter, the recently modified contracting model will be discussed, pointing out some improvements that this new law might provoke. After this confrontation of the different legal models, the PPP model will be shown, picturing some characteristics related to risk sharing, financing, advantages and requirements.

2. LEGAL FRAMEWORK FOR PUBLIC CONSTRUCTIONS IN BRAZIL

Before entering the main issue discussed in this paper, a brief exposition of the public construction model adopted by the Brazilian federal government over the past two decades will be presented. For this purpose, a quick explanation of the Brazilian legal framework will be unfolded, depicting the main characteristics related to infrastructure construction contracts settled by the government.

Therefore, to illustrate how the model of contracting public constructions evolved into the nowadays current system in Brazil, it's appropriate to describe how the related legal framework of public competitive bids underwent modifications over time. Thus, for the purposes intended by this work, the main topics related to the hiring and administrating of public works will be subdivided into the following: (i) the general contracting model; (ii) some major deficiencies of the general contracting model; (iii) some evidences of the general model's flaws.

2.1. THE GENERAL CONTRACTING MODEL: LAW 8,666/1993

In line with the basic principles employed by governments worldwide, the Brazilian Constitution (Article 37, XXI⁴) establishes that all public acquisitions (procurements), regarding either goods or services (notably constructions), must be contracted under a public competitive bidding, which must be designed in order to secure (i) a fair competition among those willing to provide the governments' needed services and goods and (ii) the certainty that the public administration will select the most favorable bid offered by the market.

Hence, following the Constitutional guidelines, in Brazil, most of the federal government contracts are held under the Law 8,666/1993⁵, which provides the general legal framework for public procurements⁶ and contract managing.

⁴ Brazil 1988. Federal Constitution.

Available at: www.planalto.gov.br/ccivil_03/constituicao/ConstituicaoCompilado.htm

⁵ Brazil 1993. Law 8,666/1993.

Available at: www.planalto.gov.br/ccivil_03/leis/l8666compilado.htm

⁶ For the means of this paper work, the term 'procurement' signifies the process by which the government acquires goods, services, and interests in real property from the private market. It is important to note that, in Brazil, government contracting has the same legal elements as contracting

This Federal Law was enacted in 1993, during a time of instability, both political and economic, that followed the Brazilian military dictatorship era. Back in the late 80's and early 90's, no private investment, neither internal nor foreign, was done in the country, due to the hyperinflation rates and the complete unpredictability of the federal policies seeking stabilization. Just for illustrating the situation, from 1967 to 1994, the base currency unit in Brazil was shifted seven times to adjust for inflation in the final years of the military dictatorship. A 1967 'cruzeiro' was, in 1994, worth less than one trillionth of a US cent, after adjusting for multiple devaluations and note changes. In that same year (1994), inflation reached a record 2,075.8%⁷.

As a consequence of the business climate of those years, public investment in infrastructure was the main victim of the stabilization programs implemented in the 1990's, because cutting this type of investment spending proved politically easier than cutting current expenditures to cover salaries and pensions, among others: public investment in infrastructure fell from 3% of GDP in 1988 to 1% of GDP in 1998⁸.

On the matter of infrastructure networks, back on the 1990's, all basic physical and organizational structures needed for the operation of the Brazilian economy (transportation, energy, water supply, security, sanitation and so on) belonged to the government, which was responsible to keep the networks in an acceptable level for Brazilian users. As all infrastructure networks were directly managed by the Government, every public work were planned, funded and operated by the public administration, and the only role played by private companies were supplying the Government's desired constructions and goods. And, as long as no further investment were supposed to be employed until the economy reached an adequate level of stability, almost all of the government efforts regarding the enhancement of the country's infrastructure networks were related to repairing and maintaining the already existing networks.

between private parties: a lawful purpose, competent contracting parties, an offer, an acceptance that complies with the terms of the offer, mutuality of obligation, and consideration. However, in Brazil, public contracts are heavily regulated, through a series of procedures dealing with both the contract itself and the contracting process (the procurement process).

⁷ Leslie Evans. 'How Brazil Beat Hyperinflation'. UCLA, 2002.

Available at: www.econ.puc-rio.br/gfranco/How%20Brazil%20Beat%20Hyperinflation.htm

⁸ Latin Business Chronicle. September 09, 2010. 'Brazil's Infrastructure Challenge'.

Available at: www.latinbusinesschronicle.com/app/article.aspx?id=4511

Under this scenario, the procurement and contraction Law, enacted in 1993, simply created a series of bureaucratic procedures for government contracting. As the Brazilian economy doesn't seem to accelerate its growth, and efficiency and sustainability were not a commonly discussed issue, by passing the Law 8,666/1993, the legislators thought the best way to maximize the public interest and protect the governmental investments was establishing a heavy oversight machine to control the public expenditures and avoid corruption.

Even though this Act establishes procedures for all types of contracting with the public administration, as time came by, it was in the field of public construction contracts that some of its deficiencies proved to be more striking.

In regard of public constructions, following the Constitutional guidelines, the Law established a model in which all public procurement should be preceded by a competitive bidding (usually by a lowest price competition process⁹). However, as the Government was responsible for all infrastructure networks available and no significant investments were supposed to be employed in those years of economic turmoil, the Law determined that all contracts should be done in order to keep under State control the responsibilities for planning, financing, operating and maintaining the infrastructure systems.

Thus, Law 8,666/1993 draw out a hindered model for contracting, in which the public administration, prior to signing any construction contract (pre-construction stage), must develop a complete engineering design (Law 8666/1993, article 6th, IX, and article 7th, § 2nd, I¹⁰), describing all necessary and sufficient elements regarding the project submitted to market bidding. And, as the construction is finally finished, all operating and maintaining actions concerning the management of the final facility (post-construction stage) would still be under Government direct control.

⁹ Although the Law allows different sorts of biddings, such as 'best technique' and 'best price and technique combined', for convenience and simplicity, usually the procurements are made for the lowest bidder, as the engineering solution has been already designed by the government and no technological peculiarity is taken into consideration in the selection process.

¹⁰ Although the Law uses the term 'basic engineering design', through this Act, the Brazilian legislators established a vast list of prerequisites that should be met before submitting any project to bid, such as and not limited to: definition of the technology and the constructive methods to be employed; a list of materials, services and equipment to be applied in the work; a detailed and properly assessed estimate of the costs, based on unitary services and supplies. As it can be seen, Law 8,666/1993 established a series of obligations to the public administration related to engineering and performance risks, as it called back to itself the responsibility for developing the engineering design, and operating the ultimate construction. As it will be disclosed later, in time, this model turned out to be an inefficient and utterly unsustainable solution for public constructions.

In other words, the model established by Law 8.666/1993 straightforwardly dictates that all responsibilities related to (i) developing an engineering design, (ii) financing the costs of implementation, and (iii) finally operating the ultimate construction (offering the public work to the users), must remain under the tutelage of the State, which is legally able to transfer to the private sector so only the obligation of building the engineering solution planned by the Government.

It's very important to pose that although this model has been created within a period of economic instability and meager investments in infrastructure, until today, the system designed by Law 8,666/1993 remains mandatory for the vast majority of public procurements in Brazil.

In benefit of clarity, to illustrate the model created by Law 8,666/1993 and point out some of its main deficiencies, a hypothetical example will be given below.

Suppose that a city in Brazil is in need of some transportation improvement (as a harbor, a road or a railroad). As the prevailing assumption originated by Law 8,666/1993 is that the public administration must provide directly all the infrastructure needed by the population, the local government plans a solution for the demand and decides to build a new highway connecting two important corners of the city.

Then, following the legal terms, the public administration develops the complete engineering design, defining all peculiarities of the project (such as technology, constructive method, materials and equipment to be employed, detailed cost estimation, and so on). In several cases, as the public administration does not have enough skilled people to perform this duty, an engineering consultant company is hired to develop the designs.

After concluding the engineering solution (which, in Brazil, for road constructions, takes about an average of 540 days¹¹), the municipality performs a public competitive bid, seeking in the market a construction company that is willing to build the desired road for an affordable price. Abiding to the legal commandments, the procurement process takes about 120 days to be finished; and this period might be increased due to appeals brought by the losing firms.

¹¹ University of Brasilia. 1st Forum on Risk Evaluation in Public Constructions. February 19th, 2014. Available at: riscosmobraspublicas.blogspot.com.br/p/apresentacoes-dos-palestrantes.html

So, after about 660 days of planning and hiring the constructor, which is usually referred to as the 'pre-construction stage', the road is ready to be built.

During the construction, the contracted firm strives to accomplish all the engineering requirements regarding the planned solution, which took a significant amount of time for the Government to design. Nevertheless, as in any construction, modifications of the original contract are extremely common and they take place as a claim from the contractor for a change order.

A change order refers to a contract alteration, typically involving engineering issues, but reflecting in other contract aspects such as completion date and price. Change orders arise when one of the contracting parties realizes that the original contract specifications are inadequate. For example, once the highway is under construction, it may become apparent that the road idealized will not afford the increased traffic demand for rush hours. In such events, the initial design will need to be modified to correct the inadequacy¹².

Once the project imperfections are rectified (which often results in cost and time overruns), the contractor seeks a way to maximize its profit on the construction process. In a lump-sum contract¹³, the contractor's profit is the fixed contract price less the contractor's costs, which result as an incentive to cut costs. As the model adopted by Law 8,666/1993 does not establish any performance responsibility for the hired company, this incentive might stimulate the employment of lower quality materials, labor or possibly construction techniques.

By the time the road is concluded and the public administration accepts the final object, the contractor's main obligations are over¹⁴, giving birth to the 'post-construction stage'. And as the highway is finally available to the users, the maintenance costs emerge.

¹² James, D. Cashell, and I. George R Aldhizer II. 2004. 'Construction contract auditing in local government entities'. The Journal of Government Financial Management 53 (Spring): 42-50.

¹³ Lump-sum contracts are those in which the Administration and the contracted company agree to do a described and specified project for a fixed price. Also named 'Fixed Fee Contract', it is often used in engineering contracts, as its model is suitable if the scope and schedule of the project are sufficiently defined to allow the Administration to properly estimate the project's costs.
Available at: www.engineeringtoolbox.com/contract-types-d_925.html

¹⁴ In fact, Law 8,666/1993 instructs that the contractor is responsible for the soundness and safety of the construction for over 5 years. Nonetheless, most of the engineering flaws are not detectable on singular inspections (they often demand laboratory tests), and are hardly identifiable as a result of the employment of low quality materials and labor (which hinders possible regressive lawsuits against the builders).

Once the road is put into use for the population, some deficiencies related to the quality of the materials start to appear (pavement degradation, defective signaling, undersized drainage apparatus, etc.). And as the construction firm is not responsible for the operation and maintenance of the highway (he was hired just to build the road, not to manage its operation after construction), in time, the municipal government will have to apply additional unpredicted investments to repair and even reconstruct the road.

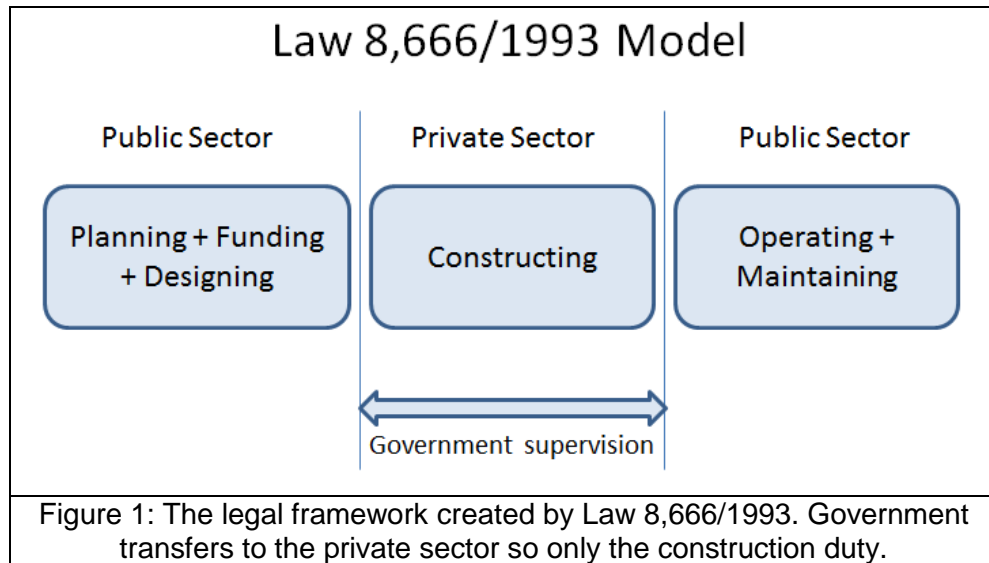
It is unquestionable that any construction, even if perfectly designed and built, will ask for maintenance over time. And a sound public policy should predict this kind of expenditures along time. Nevertheless, in the Law 8,666/1993 model, as no performance risk¹⁵ is attributable to the constructor and the construction process is often not appropriately inspected by the public administration¹⁶, striving for lower costs the builders tend to apply inferior materials and techniques, which ultimately lead to extraordinary repairing costs.

In short, as it can be seen through the hypothetical example exhibited above, the model created by Law 8,666/1993 predicts that all responsibilities related to planning, funding, designing, operating and maintaining the final construction remain with the government, which is able to transfer to the private industries so only the construction duty. Figure 1 below illustrates the situation just described.

From the example, it is clear that the model created by Law 8,666/1993 demands a great effort of the public sector to plan, design and manage the public constructions; besides that, as far as no performance liability is asked for the constructor, it also requires an efficient supervision task during the construction stage. In short terms, government plays a huge role in this system.

¹⁵ In project management, the term 'performance risk' relates to the risks that the completed project, when finished, fails to perform as intended or fails to meet the requirements that justified it. In a road, for instance, this risk might represent the responsibility of the constructor that the final highway is sustainable, in the sense that it bears the conditions for which it was designed for a reasonable period (such as traffic weight, soil erosion, weather conditions, etc.).

¹⁶ According to Law 8,666/1993, the public administration must employ a substantial supervision over the constructor company, to guarantee the compliance of the construction with the engineering solution hired by the government. This statement, although straightforward, is hardly possible, due to the costs involved in this duty (daily basis inspections and laboratory tests) and the lack of skilled people available to perform this task inside the government.



Back in the 1990's, the Law 8,666/1993 model worked well in its first years, once few investments in infrastructure were being made. However, with the macroeconomic stabilization that took place on the second half of that decade, Brazil started a period of great prosperity and rapid economic growth. The public investments in infrastructure aroused from 1% of GDP in 1998 to 5% of GDP in 2008, when the Brazilian Federal Government launched the ambitious Growth Acceleration Program (PAC), earmarking around US\$ 349 billion in investments for the 2007-2010 period (most of all in social infrastructure, energy-related projects, and logistics)¹⁷.

And, in spite of this entire economic dynamism, the general procurement law, with all its time consuming processes and requirement for intense government action, remained the same until 2013. Nevertheless, as the Brazilian economy increased the intern investments and demanded more efficient and sustainable infrastructure networks, some major flaws of the Law 8,666/1993 model started to flourish.

2.2. SOME MAJOR FLAWS OF THE GENERAL MODEL

As stated previously, the model created by Law 8,666/1993 predicts that all stages related with public constructions must be kept under Government control: planning, funding, designing, constructing, maintaining and operating. This system, stemmed from a period of great macroeconomic instability in which no private investment

¹⁷ Latin Business Chronicle. September 09, 2010. 'Brazil's Infrastructure Challenge'. Available at: www.latinbusinesschronicle.com/app/article.aspx?id=4511

appeared feasible in Brazil, establishes a great number of responsibilities for the public administration, since only the construction duty is allowed to be transferred to the private sector.

From the time the Brazilian economy showed signs of stabilization, a series of new investments began to be performed in the country. Along with the remarkable economic growth of the 2000s, a series of demands for better infrastructure networks emerged and the Federal Government, liable for most of these networks, enlarged its expenditures impressively: in 2003, total infrastructure investments performed by the public sector summed US\$ 16.6 billion, against US\$ 31.2 billion in 2007¹⁸.

As demands for infrastructure became imperative, the Federal Government increased spending on public works, leading to a series of new public contracts, all of them abiding to the model designed by Law 8,666/1993. Overnight, public departments responsible for managing the infrastructure networks started to hire new employees and conduct a great number of bidding procedures, in an attempt to minimize the country lack of infrastructure background.

As expected, under the political pressure of putting the projects into action as fast as possible, little time could be devoted to planning and designing the engineering solutions.

Just as enunciated before, in 2007, the Brazilian Federal Government launched the Growth Acceleration Program (PAC) as a strategic investment program that combined management initiatives and public works. In its first phase, launched in that year, the program called for public investments of US\$ 349 billion. Later on, in 2010, phase two of the Program (PAC 2) was announced with estimated investments of US\$ 526 billion for the period from 2011 to 2014¹⁹.

Thus, as government expenditure rose substantially and public construction contracts multiplied all of a sudden, some major flaws of the model created by Law 8,666/1993 popped up. Generally speaking, these deficiencies regard the succeeding issues: (i)

¹⁸ PricewaterhouseCoopers, 2013. 'Crunch time for Brazilian infrastructure'. Available at: www.pwc.com/gx/en/capital-projects-infrastructure/infrastructure-investment-growth-in-brazil.jhtml

¹⁹ PAC 2 focuses on investments in the areas of logistics, energy and social development, organized under six major initiatives: Better Cities (urban infrastructure); Bringing Citizenship to the Community (safety and social inclusion); My House, My Life (housing); Water and Light for All (sanitation and access to electricity); Energy (renewable energy, oil and gas); and Transportation (highways, railways, airports).

entire responsibility over the engineering design, (ii) government inability to inspect the construction process in a *pari passu* manner, and (iii) disengagement of the construction firm with performance risks.

The model created by Law 8,666/1993 dictates that prior to commencing any bidding process the public administration must develop a complete engineering design, describing all features regarding the desired project. Obviously, no purchase, triggered either by the public sector or the private sector, can be initiated without a previous delimitation of the desired project. Nevertheless, the model stemmed from this Act requires a full engineering design, far from a basic characterization of the solution sought, unnecessarily determining items like technology applied, constructive method, materials and equipment employed, detailed cost estimation, and so on.

The first consequence of all these responsibilities associated to the engineering solution is the time required to develop the designs. Just to exemplify, according to Brazilian National Department of Transport Infrastructure (DNIT)²⁰, for roads construction, an average period of 540 days is demanded for creating the complete engineering design²¹, followed by other 120 necessary to fulfill all bureaucracies related to the bidding procedure. And once the Growth Acceleration Program was triggered, a significant political pressure for celerity birthed, going against the levels of detail required by law.

The second repercussion (and of the majors) is the undoubting proliferation of claims for contract alterations during the construction process. As mentioned before, as far as the only duty transferred to the private sector is the building task and all responsibility for the adequacy of the engineering designs belongs to the State, every slight impropriety of the project is fully explored by the constructor as a possibility to renegotiate the contract, both in price and time matters. And as the public administration does not operate within the construction industry, a large asymmetry of information²², regarding labor, techniques, materials and equipment, gives rise to a

²⁰ <http://www.dnit.gov.br/>

²¹ DNIT estimates that private companies would be able to develop the same engineering design in 120 days (around 22% of the time consumed by the public procedure).

University of Brasilia. '1st Forum on Risk Evaluation in Public Constructions'. February 19th, 2014.

Available at: riscosemabraspublicas.blogspot.com.br/p/apresentacoes-dos-palestrantes.html

²² Just to point out the picture, nowadays, due to the amount of public investments applied in Brazil, a new segment of consultant firms, specialized in contract claims against the Federal Government, have

series of claims for renegotiation in an attempt to top up payments perceived by the builder.

Another great issue derives from the statutory requirement that a detailed and properly assessed budget of the entire work must be previously composed as a reference price, based on unitary services and supplies, and disclosed to the market at the beginning of the bidding process. This precept, designed to avoid corruption and the payment of overpriced costs, generates a major difficulty to the public administration, once the government, out of the construction business, cannot feasibly predict the entire costs concerning this industry nor efficiently estimate all services and supplies that will be employed on the construction itself. The result is a tendency to create budgets widely disconnected from market prices, which might even encourage collusion between the companies participating in the bidding²³.

For last, there is no denying that the legal procedure encourages the loss of efficiency in the construction. As the solution idealized by the government limits the engineering solution adopted and the labor, materials and equipment that will be paid in executing the work, many of the best practices and technologies available in the market might not be applied in the construction. And as the government most of the time does not have specialized personnel nor operate any company in the construction industry, the planned solutions tend to be more inefficient than those developed by private enterprises that deals within a competitive and dynamic market. In other words, in such a system, there is no space for any engineering improvement that might induce a less costly or more efficient construction.

Besides all the problems stemmed from the engineering design, another major weakness of the Law 8,666/1993 model is the government inability to efficiently oversee the construction process.

As widely said, in this model the government is responsible for planning and designing the engineering solution and in the end it will be solely in charge of the operation and maintenance process. Therefore, to avoid unconformities in the execution of the contract, it must be assured that all requirements once established

been widely hired by Brazilian constructors. Their main target is to seek flaws in the construction contracts that might enable the renegotiation of contractual prices.

²³ In several cases, the result of the auction was contracts originally signed with almost no discounts relatively to the administration's reference price, as all participating companies basically bid for the same overall price.

(regarding techniques, equipment, materials, labor and others) are properly being applied by the contractor. And this task demands a great effort for those designated to oversee these constructions.

The Law predicts that an effective supervision should be performed during the entire constructive phase, with the purpose of reduce the possibility of employing lower-quality materials and equipment in the execution. Nevertheless, as the government lacks enough and/or sufficiently skilled staff and no public agency is particularly familiar with the dynamics of the construction market, the construction firms tend to lower their costs (and maximize their margins) through the appliance of inferior materials, which will ultimately lead to unpredicted and unnecessary repairing costs. And since no performance risk is liable to the constructor in this model, all these extraordinary costs will be supported by more public funds.

Finally, the absence of performance risk certainly is another major problem related to this model, concerning its sustainability.

Once the constructions are over, the contractor's main obligations disappear and the maintenance and operation costs emerge; and all undisclosed or unseen construction flaws will represent more expenditure from the government. In any competitive market, industries look for an efficient way to maximize their profit, considering all costs related in their investments. For every new project, this means an intense search for the optimum combination of reasonable initial costs and affordable correlated maintenance and operation expenses (which often represents the largest part of the investment costs²⁴).

Well, with that said, it is crystal clear that the model established by Law 8,666/1993 disconnects design and construction from operation. In other words, the one in charge for the building work has no responsibility over the operation and maintenance of the facility erected. And this characteristic of the system creates an unquestionable loss of sustainability in the public constructions.

²⁴ In 2006, a study developed in the US found the cost of operation and maintenance of government office buildings over 10 years to be about one and a half times the cost of initial construction. Other estimates put the cost of operation and maintenance at up to five times the cost of initial construction. www.fs.fed.us/t-d/pubs/htmlpubs/htm08732839/page01.htm

With no performance risk undertaken by the constructor and no project life-cycle analysis²⁵ performed by the public administration, there is no incentive for the use of more durable materials and technologies, which might definitely involve an increase in the installation costs, but might ultimately result in a considerable reduction of future maintenance expenses that compensates by far the initial investments.

Additionally, it must be stated that, because government funding tends to be limited, designers and public managers traditionally have focused on minimizing the initial cost of the structures, unfortunately producing inefficient, short-lived constructions with unnecessarily high operation and maintenance costs. In this sense, with no commitment of the constructor with performance risks, there is an undeniable loss of sustainability in the government's projects, highlighted in low quality constructions that demand exorbitant levels of repair investments over the years.

The general contracting model created by Law 8,666/1993 calls back to the government responsibilities related to all stages of public constructions. As mentioned, the deficiencies of the current system are evident and have led to great wastes of public money. And some of these yelling flaws have been detected several times in audits performed by the Federal Court of Accounts of Brazil (TCU).

2.3. SOME EVIDENCES OF THE GENERAL MODEL'S FLAWS

In Brazil, the Federal Court of Accounts of Brazil (free translation of 'Tribunal de Contas da Uniao' - TCU) audits the accounts of administrators and other persons responsible for federal public funds, assets, and other valuables, as well as the accounts of any person who may cause loss, misapplication, or other irregularities that may cause losses to the public treasury. Such administrative and judicative authority, among others, is provisioned in Article 71 of the Brazilian Constitution²⁶.

²⁵ In project analysis, 'life-cycle cost analysis' is a method of determining the entire cost of a structure, product, or component over its expected useful life. The cost of operating and maintaining the item is added to the purchase/construct price. For projects that last longer than a couple of years, this is a more realistic way of evaluating cost than simply looking at the purchase/construct price. Over the life of a public facility, operation and maintenance usually cost more than initial construction. This is true both for new construction and for major replacement and improvement projects, so it makes sense to include operation and maintenance when evaluating cost effectiveness.

Available at: www.fs.fed.us/t-d/pubs/htmlpubs/htm08732839/page01.htm

²⁶ portal2.tcu.gov.br/portal/page/portal/TCU/english/inside

One of the main concerns of TCU is the incessant fight against corruption, waste, and the misuse of federal resources. Therefore, besides carrying out audits that are requested by Brazilian Congress or originated by denunciations or petitions, twice a year the Court establishes a schedule of audits to verify the correct use of public funds by the organizations and entities under its jurisdiction (such inspections are called compliance audits)²⁷.

In the specific field of public constructions, since 1996, TCU has been legally forced to execute regular compliance audits in contracts and scrutinize public works that have received federal funds, in order to report their status to Brazilian Congress, which will ultimately form an opinion as to the convenience or not, of disbursing budgetary funds for the maintenance or for resuming these construction contracts²⁸.

Over the latter 6 years (2008-2013), after the launch of the Growth Acceleration Program (PAC), TCU performed more than 1,170 compliance audits in construction contracts (an average of 195 inspections per year), the majority of all (over 95%) were settled under Law 8,666/1993²⁹. Through these audits, TCU pointed out a vast list of irregularities, classified according to their level of severity and their potential to harm the public interest. The overall results of these irregularities might be summarized in Table 1 below:

Table 1 – Irregularities in public constructions detected by TCU between 2008-2013

	2008	2009	2010	2011	2012	2013
Serious irregularity ^(A)	65%	68%	93%	82%	62%	61%
Minor irregularity ^(B)	25%	16%	3%	14%	34%	21%
No irregularity ^(C)	10%	16%	4%	4%	4%	18%
Number of constructions audited	153	219	231	230	200	136

A) 'Serious irregularity' represents the percentage of the contracts audited in which serious irregularities were found. A 'serious irregularity' happens when there is an indicative that the work is being performed erratically and can cause waste of public funds, or injury to third parties. In addition to financial damages, there must be eminent risk of cancellation of the contract or severe deviation from the principles to which the public administration are submitted to, as morality.

B) 'Minor irregularity' reproduces the percentage of the contracts audited in which some irregularities were found, but none of them classified as serious.

C) 'No irregularity' describes the percentage of the contracts audited in which no deviation was detected.

²⁷ http://portal2.tcu.gov.br/portal/page/portal/TCU/english/inside/auditing/compliance_audit

²⁸ When the Court finds serious irregularities in such public works, Congress suspends the disbursement of funds until such faults are remedied. As a result, an appendix is added to the Annual Budgetary Law listing the works in serious violation so that the transfer of funds is blocked until they are brought into compliance.

²⁹ portal2.tcu.gov.br/portal/page/portal/TCU/comunidades/obras/informacoes/historico

On the Table above, it can be seen that in the latter years, an average of 72% of the constructions audited by TCU had some type of serious irregularity, while only less than 10% of those were considered entirely regular. Considering the large number of constructions audited (around 195 compliance inspections per year) and the significant amount of public expenditures related to these contracts (an average of US\$ 17.3 billion/year), one can reasonably conclude that the results reported in such audits are representative. Hence, besides the total number of irregularities detected, some useful information acquired from the audit reports (regarding the unconformities themselves) might depict quite well the major deficiencies of the Law 8,666/1993 procurement model.

By entering the audit reports, one is possible to realize that most irregularities detected over the years in the annual audits generally concern to the same specific subjects³⁰, which can be grouped into the issues of engineering design, cost estimation, bidding procedure, and proper supervision. Stemming from these issues, the most common irregularities found in the inspected contracts were: (i) deficiency in the engineering design; (ii) overpricing/overpaying; (iii) deficiency in the bidding process; and (iv) absence of proper supervision.

The engineering design is considered deficient if it does not express all the information necessary and sufficient to entirely characterize the construction. Often, these deficiencies trigger a claim from the constructor for a change order, to adjust and review the original contract. Examples of such imperfections are the selection of an uneconomical construction methods (or inefficient methods not employed in the private market), insufficient geotechnical testing to fully characterize the ground, under-sizing the materials that will be applied (such as concrete, steel, wood, etc.), among others.

The term 'overpricing' refers to those situations when a price of a good or service agreed with the government is superior to those regularly practiced in the market (once the expenditure is paid, this overpricing generates an 'overpayment'). Since in the general procurement model the public administration must develop a detailed and properly assessed budget of the entire work, not uncommonly the unitary services/supplies foresaw by the government personnel (and ultimately the overall

³⁰[http://portal2.tcu.gov.br/portal/page/portal/TCU/imprensa/noticias/noticias_arquivos/Perguntas%20e%20respostas%20Fiscobras%202009%20\(2\).pdf](http://portal2.tcu.gov.br/portal/page/portal/TCU/imprensa/noticias/noticias_arquivos/Perguntas%20e%20respostas%20Fiscobras%202009%20(2).pdf)

costs previously estimated) do not match the usual prices practiced by private companies, leading to undue or unreasonable payments in favor of the constructor.

Deficiencies in the bidding process relate to situations in which not all legal procedures were correctly followed during the procurement phase. As the Law dictates a huge number of formal procedures that, in general, requires a substantial amount of time to be fulfilled, commonly some legal commands are misused, possibly affecting the competitive process as a whole. In some extreme cases, these flaws might illegally generate some kind of favoring towards a specific firm, or even allow collusion between companies, which will drive the bidding process away from the desired path planned by the government.

At last, the absence of proper supervision occurs when the public administration does not apply the adequate supervision during the construction process, in the terms required by Law 8,666/1993. Since the government lacks enough and/or sufficiently skilled staff to perform this duty and the costs involved might be exorbitant (daily basis inspections and laboratory tests), this “proper supervision” required by Law is barely possible. As a result, this deficiency gives the opportunity to the use of materials and techniques of low quality, which in future will demand more maintenance and repairing expenses.

Table 2 below consolidates some of the interesting data expressed in the TCU reports regarding the most common irregularities found in public constructions:

Table 2 – Most common irregularities detected by TCU along 2008-2013

	2008 ³¹	2009 ³²	2010 ³³	2011 ³⁴	2012 ³⁵	2013 ³⁶
Deficiency in the engineering design	19%	22%	19%	17%	20%	29%
Overpricing / Overpayment	28%	21%	23%	22%	22%	26%
Deficiency in the bidding process	13%	39%	20%	21%	20%	14%
Absence of proper supervision	11%	9%	12%	15%	14%	10%

From the table above, it is possible to realize that, on the last 6 years, over 70% (an average of 78%) of the audit findings were directly related to the same core subjects:

³¹ http://portal2.tcu.gov.br/portal/page/portal/TCU/imprensa/noticias/detalhes_noticias?noticia=769506

³² http://portal2.tcu.gov.br/portal/page/portal/TCU/imprensa/noticias/detalhes_noticias?noticia=1810043

³³ http://portal2.tcu.gov.br/portal/page/portal/TCU/imprensa/noticias/detalhes_noticias?noticia=2833068

³⁴ http://portal2.tcu.gov.br/portal/page/portal/TCU/imprensa/noticias/detalhes_noticias?noticia=3926963

³⁵ http://portal2.tcu.gov.br/portal/page/portal/TCU/imprensa/noticias/detalhes_noticias?noticia=4474113

³⁶ http://portal2.tcu.gov.br/portal/page/portal/TCU/imprensa/noticias/detalhes_noticias?noticia=4899422

engineering design, cost estimation, bidding procedure, and proper surveillance. And, as almost all of the inspected contracts were settled under Law 8,666/1993, which basically assumes that the government must maintain a great amount of responsibilities in the matter of public constructions, there is no denying that the numbers stated in such reports highlight the main flaws of this general model.

After several years experiencing these failures, in 2013, the Brazilian Federal Government developed a new legal framework, called Differentiated Contracting Regime - DCR (free translation of 'Regime Diferenciado de Contratacao' - RDC), in an attempt to solve some of these problems and improve the efficiency of public procurements.

3. THE RECENTLY MODIFIED CONTRACTING MODEL

For over 10 years, the model designed by Law 8,666/1993 met fairly well the needs of Brazil, since few (or no) major investment was made during the time of political mistrust that succeeded the military dictatorship era. Nevertheless, after the macroeconomic stabilization, the Brazilian economy started a period of expressive rapid growth and the country's lack of effective infrastructure networks came up to obstruct the economic development (especially in the transport and energy sectors).

To lessen this gap, in the 2000s the Brazilian Government boosted its investments and a great number of public constructions started to be built all over the country. Moreover, to accelerate even more this process, in 2007 the Federal Government launched the Growth Acceleration Program (PAC), announcing a vast amount of funding to be pumped into the development of the infrastructure networks.

However, the general procurement and contracting model designed in 1993 remained the same, with all its byzantine and inefficient procedures. As a result, public spending on infrastructure simply could not keep up with the dynamism required by the fast economic growth.

Making the situation even further critical, in the years of 2005-2006, Brazil assumed some new international challenges: hosting the 2014 FIFA World Cup and the 2016 Summer Olympic Games (in the city of Rio de Janeiro)³⁷. As a consequence, Brazilian Government promised that public works projects (including overhauling urban transit, airports and ports, building new roads, sports stadiums and hotels, and upgrading communications and the energy grid) would be completed on time.

More than half of the planned World Cup-related infrastructure projects were expected to be ready by the end of 2013. But as of May 2012, just 5 percent of the projects had been completed and ground had not been broken for an additional 41 percent needed for the World Cup. Among the remaining planned projects, 17

³⁷ As much as US\$1 trillion in public and private funds were supposed to be spent on public works in preparation for both events, according to government estimates. Financier Worldwide. January, 2010. 'Infrastructure Investments in Brazil'. Available at: <http://www.financierworldwide.com/article.php?id=5678>

percent were still in the public bidding process, and 15 percent had yet to even reach the bidding phase³⁸.

In the scenario of delays, cost overruns, lawsuits, and corruption, all this lack of progress finally prompted the Federal Government to design a new procurement framework, which was finally enacted in August 2011, under the Law 12,462/2011, and received the name 'Differentiated Contracting Regime' (DCR)³⁹. Targeting the sports mega events, the major purpose of this Act was to reduce bureaucracy in the contracting process, making it faster and more streamlined both in the bidding and the construction stages.

In its original text, DCR was designed as a specific legal model for public procurements related to the sport events (reason why it received the name 'differentiated' contracting regime). This new Law simply removed the incidence of Law 8,666/1993 for any contract regarding the events' needed constructions, such as arenas and airports in the hosting cities, as an attempt to meet the compromised deadlines.

Nonetheless, in the following years, after realizing some benefits of this new contracting model, the Federal Government enacted 3 new laws, expanding the list of incidence of DCR, likewise removing the incidence of the general contracting Law. Thus, after these modifications (performed by Law 12,688/2012, Law 12,745/2012 and Provisional Measure 630/2013⁴⁰), the DCR model was expanded to include all PAC-related constructions, all works regarding the national health system, and all new buildings concerning the national penitentiary system⁴¹.

Hence, considering the magnitude of all investments contemplated by PAC and the national health and penitentiary systems, it can be reasonably stated that the contracting model of DCR is nowadays the most relevant Law applied to Federal Government acquisitions (although, in strict legal terms, Law 8,666/1993 is still valid and mandatory as a general procurement and contracting model).

³⁸ Americas Quarterly. 2012. 'Infrastructure: Brazil, the World Cup and Olympics'
Available at: <http://www.americasquarterly.org/Brazil-the-World-Cup-and-Olympics>

³⁹ Brazil 2011. Law 12,462/2011 - DCR.

Available at: http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2011/Lei/L12462.htm

⁴⁰ This temporary Act was ultimately approved by Brazilian Congress and inserted into the DCR law.

⁴¹ Brazil 2014. Brazilian Transparency Portal - Federal Government.

Available at: <http://www.governoeletronico.gov.br/aco-es-e-projetos/compras-eletronicas/regime-diferenciado-de-contratacoes-2013-rdc>

The first perceived improvement related to DCR was the acceleration of the bidding process, by remodeling the formal procedures and reducing the amount of time necessary to ultimate the hiring. For instance, the Brazilian National Department of Transport Infrastructure (DNIT) estimates that such simplifications tend to make more dynamic the contracting process, reducing the time limit for bidding at about 45% and the time to start a construction by 20%⁴².

Another great progress showed by DCR was the modernization of the bidding process, by eliminating or diminishing some obsolete requirements of technical and financial qualification for companies interested in the competitive disputes. This slight simplification might implicate an increase in competitiveness among potential stakeholders, with obvious repercussion on the final costs of the project.

Along with the advances just unfolded, all of them regarding less bureaucracy in the bidding process (which in itself represent a significant evolution that will tend to enhance the celerity of public contracting in Brazil), DCR brought up a substantial change in the prevailing legal framework, as it enable the public administration to transfer to the private sector the responsibility for the engineering design. And this widely positive innovation perhaps shall settle one of the major flaws related to Law 8,666/1993: the government responsibility over the entire engineering project.

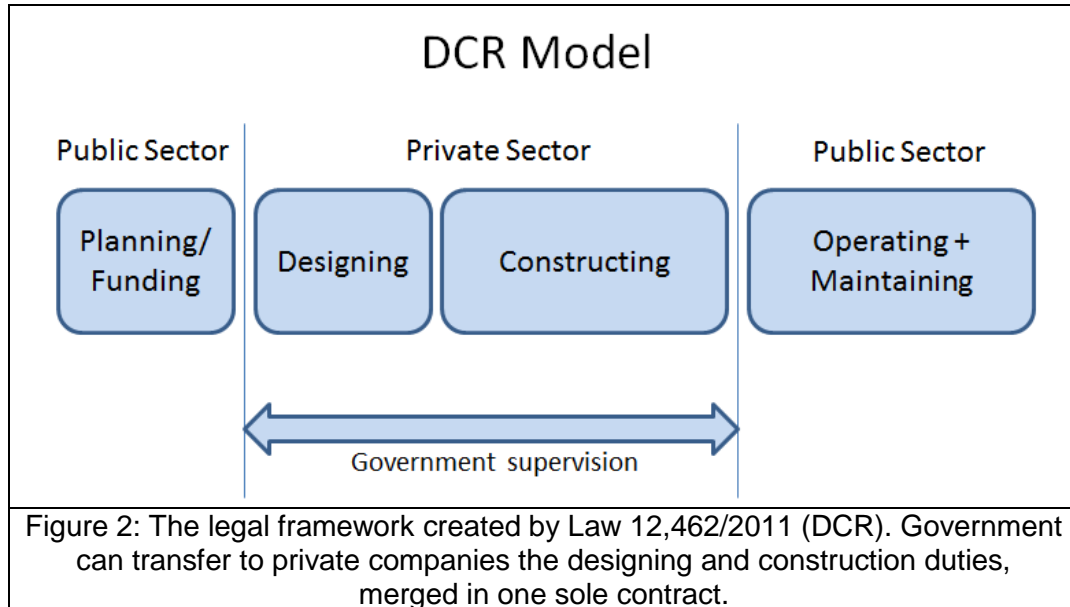
Recovering what has been said earlier, the model of Law 8,666/1993 predicted that all responsibilities related to planning, funding, designing, operating and maintaining the public constructions remain with the government, which is able to transfer to private firms so only the construction duty. Now, by means of DCR, the public administration has the prerogative to pass on to the private sector the responsibility for developing the entire engineering tasks, merging in the designing and the construction stages into one same contract. Figure 2 illustrates this new plot innovated by DCR.

According to the DCR-Law, government has the possibility of settling an 'integrated contract'⁴³, which is nothing more than the ability to jointly contract the engineering

⁴² University of Brasilia. '1st Forum on Risk Evaluation in Public Constructions'. February 19th, 2014. Available at: <http://riscosobraspublicas.blogspot.com.br/p/apresentacoes-dos-palestrantes.html>

⁴³ In DCR, the 'integrated contract' includes the preparation and development of basic and executive engineering projects, the execution of works and engineering services, assembling, testing, pre-operating, and all other operations necessary and sufficient for the final delivery of the agreed object. (Law 12,462/2011 - DCR, Article 9th, Paragraph 1st)

design and the execution of the construction itself, settling an agreement with one single private company who will be solely responsible to design and construct the object submitted to competitive bid.



Even though the same Law dictates that this 'integrated contract' can be celebrated exclusively in some specific situations⁴⁴, this innovation takes away the burden of defining the entire engineering solution, as, instead of creating a complete engineering design, the public administration is able to develop a simple blueprint that enables the characterization⁴⁵ of the work, and leave to the hired company the task of setting up the engineering details to be applied.

Notwithstanding it may seem that this simple innovation⁴⁶ only conveys a responsibility that was previously in the hands of the government to a private company, the repercussion that this single change in procedures may potentially cause are enormous.

⁴⁴ In DCR, the 'integrated contract' can be celebrated only if the desired construction involves one of the following situations: (i) technological or technical innovation; (ii) possibility of execution with different methodologies; or (iii) possibility of execution with market's restricted domain technologies. (Law 12,462/2011 - DCR, Article 9th, caput)

⁴⁵ In terms of engineering design, in DCR the characterization of the works basically means the duty of establishing: (i) the soundness, safety, durability and delivery conditions; (ii) the architectural design; (iii) the environmental impacts; and (iv) the overview of the investments. (Law 12,462/2011 - DCR, Article 9th, Paragraph 2nd, I)

⁴⁶ In fact, DCR did not create a new type of construction contract. It just incorporated a common form of arrangement applied within the construction industry, named EPC contracts (acronym for engineering, procurement and construction). This kind of contract has been widely recommended by some internationally renowned institutions, such as FIDIC (International Federation of Consulting Engineers - <http://fidic.org/>), IPA (Independent Project Analysis - <http://www.ipaglobal.com/Home>), and AACE (Association for the Advancement of Cost Engineering - <http://www.aacei.org/>). The overall

The first major change expected by the introduction of the integrated contract model is accelerating the construction process by reducing the assembly time of the engineering design. As the designs will be developed by a company accustomed to the best practices of the construction industry, the time to gather up the engineering solution tends to be diminished. Furthermore, since the designing and constructing stages are merged into one joint contract, the constructor might be able to initiate part of the construction without even having entirely concluded the designs, speeding up towards the end of the work.

The second significant improvement that is supposed to occur with the DCR model is a gain in efficiency in the construction process itself. Now, once there will be no more limitations regarding the engineering solution adopted, nor the labor, materials and equipment that will be paid in executing the work, the constructor will be prone to employ the best practices and technologies available in the market, targeting reduce time and cost in the building process. Hence, there will be space for improvements that might induce a less costly or more efficient construction.

The third meaningful achievement presumed to happen, and perhaps the most relevant one, is to dwindle the number of claims for contract alterations during the construction. In the archaic general model, in which all engineering responsibilities remained within the government, every slight impropriety of the project was fully explored by the constructor as a possibility to renegotiate the contract, both in price and time matters. And as no engineering risk was assumed by the private firm, all these claims were often responsible for time and cost overruns in the original agreement. With DCR, any imperfection in the engineering solution that might undermine the soundness, safety, durability and delivery of the final work will be solely supported and fixed by the constructor. Thus, contract alterations due to rectifications in the engineering solution are supposed to be almost eliminated and the public administration will be more certain to expend a single sum of money (previously agreed) for a construction that will be effectively ready to use upon delivery.

Finally, it is expected, at least in some extent, that DCR stimulates contract prices to be more reliable and closer to the market reality. In the previous general model, the

public administration had to assemble a detailed and properly assessed budget, based on unitary services and supplies that were intended to be employed, specifying every single cost expected to occur. This precept created a distortion in the sense that it simply gave birth to budgets widely disconnected from market prices that needed to be reviewed and adjusted several times during the construction stage. Now, with DCR, the public administration will be able to elaborate a global and parametric cost estimation (instead of a highly detailed budget), which will not be disclosed to the participating companies until the end of the bidding procedures⁴⁷, letting the participating companies to freely and unbiasedly compete by offering a market-aligned price for the desired work.

In short, the enhancements expected to be unfold by the adoption of the DRC model are fairly straightforward. Since this legal framework is still at an embryonic stage in Brazil, and both the private market and public administration are still in a learning phase, there are not enough evidences of the improvements derived from the DCR model. However, as a rule, nothing that a private market is able to provide ought to be better developed by the public sector, simply because there is no profit incentive in public management⁴⁸. In this sense, transferring to the private sector some task that the market is able to fulfill will always tend to increase efficiency, since private companies within a well-established competitive market must be dynamic and constantly seek to adapt themselves to the new realities of the economic scenario.

Although great improvements in public construction contracts ought to occur, it must be clear that DCR cannot be taken as a panacea, as simply shifting to a private company something the government used to do (in this case, the designing duty of the infrastructure projects) will not solve all Brazilian problems related to public constructions. The DCR model shall prosper and achieve the expected results, if and only if the public sector expands its role of oversight and supervision, besides ensure the necessary conditions for the functioning of a truly competitive market.

In DCR, more power is granted to the private sector and, still in the same way of the general Law 8,666/1993 model, no performance risk is assumed by the contractor.

⁴⁷ In DCR, the previously estimated budget for contracting will be made public only and immediately after the end of the bidding. (Law 12,462/2011 - DCR, Article 6th, caput)

⁴⁸ Ludwig von Mises, 'Economic Freedom and Interventionism', Liberty Fund: 2006, pages 62-63 "*Daily experience proves clearly to everybody but the most bigoted fanatics of socialism that governmental management is inefficient and wasteful. There is no remedy for the inefficiency of public management*". <http://mises.org/efandi.asp>

Hence, the same lack of sustainability is expected, since there is no incentive for the use of more durable materials and technologies that might ultimately result in a reduction of future maintenance expenses (contrariwise, there is a stimulus for low cost and quality constructions that request unnecessarily high levels of repair investments over the years). Moreover, as government funding keeps its limitations (DCR keeps also assumes that the projects are entirely sponsored and financed by public money) and the constructor will perceive no profit during the operation post-construction stage, there is still a focus on minimizing the initial cost of the structures, through producing inefficient and short-lived constructions.

And for all these reasons, government should further intensify its oversight and supervision role.

Finally, another indispensable duty government must keep in mind, not only for the means of the DRC model but for any publicly funded project, is securing perfect competition among private companies. This task is especially imperative because, if any lack-of-competition is allowed, collusion⁴⁹ between interested firms might occur and there might be no way to assure reasonable market-aligned contract prices.

And this undesired market behavior demands an effective regulatory role to be played by the public administration.

Considering all of the above, the recently modified contracting model enacted through DRC probably will bring good benefits by reducing bureaucracy in the contracting process, making it faster and more streamlined both in the bidding and the construction stages, and perhaps dwindling some of the major flaws related to Law 8,666/1993 (especially those regarding the government responsibility over the entire engineering project).

In spite of all these enhancements, the DRC model, keeping some of the old traditions of Law 8,666/1993, also assumes that government must be in charge of planning and funding the entire project, besides operating the constructed facility after all. Based on this, there is space for even more ameliorations that might further

⁴⁹ Typically, bidders collude by agreeing with each other to not bid against each other, allowing prices to increase accordingly. Then, those who were involved in the collusion later divide up or apportion the illegal excess profits made by the winner.
<http://mikebrandyauctioneer.wordpress.com/2010/05/14/what-is-collusion-at-an-auction/> &
<http://tutor2u.net/economics/revision-notes/a2-micro-oligopoly-collusion.html>

improve the efficiency and sustainability of public constructions in Brazil. And most of these advances might be achieved by stimulating public-private partnerships (PPP) in which the private sector is responsible for the designing, financing, constructing and operating the entire project.

4. THE PUBLIC-PRIVATE PARTNERSHIP MODEL

So far on this paper work, a basic analysis of the Brazilian legal framework had been performed, depicting some flaws that the general contracting model (Law 8,666/1993) had revealed and some probable improvements that the recently modified model (DCR) ought to provoke. Nonetheless, along with the several adjustments regarding the way government should procure its desired constructions, following the international context, there has being seen a new trend in Brazil regarding the shift of public works to private companies (or a new privatization era), through the mechanism of public-private partnerships (PPP).

As stated countless times, the basic idea behind the Brazilian contracting models is that all public constructions are planned, funded and maintained by the government. Yet, after the financial crisis that hit the world in 2008, the Brazilian government realized that it alone was not able to procure the volume of infrastructure required to overcome the country's gap and maintain sustainable infrastructure networks in the level demanded by the boosting economy.

Unquestionably, its major limitations are broad public sector constraints in relation to either a lack of public capital or/and lack of capacity and specialized expertise to develop, manage, and operate the needed infrastructure. In this sense, a move toward increased reliance on PPP for infrastructure development might enhance the efficiency of the networks and achieve a desired quality service delivery, together with good governance.

In general terms, PPPs are joint ventures in which business companies and government co-operate, each applying its strengths to develop a project more quickly and more efficiently than government could accomplish on its own. Thus, the basic assumption of a PPP is that public constructions can be managed as a business and explored as an investment opportunity that provide competitive rates of return commensurate with a financial rate of return that could be earned on alternative projects of comparable risk.

Likewise, public-private partnerships are long-term associations between the public and private sectors that usually involve the private sector undertaking investment

projects that traditionally have been executed (or at least financed) and owned by the public sector. The central feature of a PPP is that the public sector purchases (directly or through user charges) a flow of services rather than building or procuring the physical assets and employing the personnel for its maintenance and operation.⁵⁰

Putting in different words, PPP is an important avenue for financing major public sector infrastructure projects in which the private sector may be responsible for designing, funding, constructing and operating (and eventually owning) the entire project. Hence, the PPP contract is a special concession arrangement through which the public administration delegates to a private partner the provision of a service, with or without prior construction works, and remuneration paid by the users and the state⁵¹, or by each one them alone⁵².

In Brazil, the legal framework for PPP is Law 11,079/2004⁵³, including the changes introduced by Law 12,766/2012 and the concession background of Law 8,987/1995⁵⁴, establishing general rules for competitive bidding and contracting the private partner at both the national and sub-national levels. Among its features, Law 11,079/2004 allows government entities to assume long-term commitments (not inferior to 5 years, and up to 35 years), including the payment of subsidies to service providers, with the overall objective of increasing efficiency.

Considering the above assumptions, Figure 3 illustrates how the public and private sectors responsibilities are distributed in a PPP model.

⁵⁰ Cesar Queiroz and Alejandro Lopez Martinez. 2013. 'Legal Frameworks for Successful Public Private Partnerships', in *The Routledge Companion to Public-Private Partnership*. Edited by Piet de Vries, Etienne B. Yehoue. Routledge Companions in Business, Management and Accounting.

Available at: <http://www.routledge.com/books/details/9780415781992/>

⁵¹ Carlos Eduardo Motta and Cesar Queiroz. 'An Overview of the Brazilian PPP Legal Framework: Guiding Steps for Selecting and Contracting PPP Projects'. 1st International Conference on Public-Private Partnerships. Dalian, Liaoning, China, August/2013.

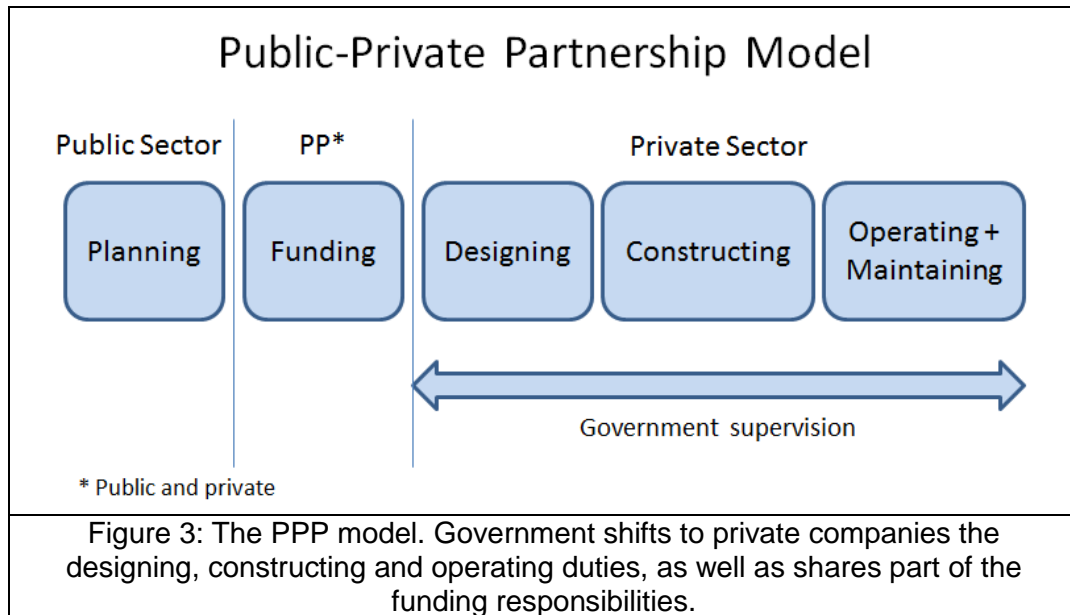
⁵² In strict legal terms, in Brazil, a PPP contract must predict some kind of public funding in the agreement, meaning that the private partner's revenues cannot be raised solely through users' tariffs; otherwise the settlement will be considered as a simple concession, regulated by Law 8,987/1995. In spite of that, as all international literature around this subject treats concession agreements as a kind of public-private partnership (and vice-versa), for the purposes of this work, henceforth the term PPP will be taken broadly, as the contract by which government transfers to a private company the responsibility to offer some type of public work to society (users), regardless of how the project's funding is designed.

⁵³ Brazil 2004. Law 11,079/2004 – PPP

Available at: http://www.planalto.gov.br/ccivil_03/ato2004-2006/2004/lei/111079.htm

⁵⁴ Brazil 1995. Law 8,987/1995 – Concessions

Available at: http://www.planalto.gov.br/ccivil_03/LEIS/L8987cons.htm



4.1. EXEMPLIFYING THE PPP MODEL

Just as performed for the model created by Law 8,666/1993, a hypothetical example might clarify how the PPP model works. Suppose that the same Brazilian city, which is in need of some transportation improvement, decides to build the new highway as a public-private partnership, assuming that this public construction might be managed as a lucrative business with fair returns for private investors.

After planning the solution for the population's demand, which includes the way the project will be financed (either by public funding and/or through users' fares), the basic features of the desired road (such as areas connected and performance requirements) and the concession period, government is able to submit a competitive bid to the market, searching for private partners that might consider the investment as an attractive business opportunity.

Following the legal commandments, the bidding procedures takes about 90 days to be finished (Law 11,079/2004 - PPP, Article 10, VI, and Article 12, caput); and this period might be increased as well due to appeals from participating firms.

So, after this bidding process, the project is about to be started and the private partner (selected as the best bidder) begins to develop the engineering solution.

Just like in the DCR model, the designing and constructing tasks are under the constructor responsibility, allowing it to initiate part of the building duties without even had entirely concluded the designs. In fact, as the road might be planned to be partially funded by users' fares, the private partner has a major incentive to hasten the construction as soon as possible and quickly accomplish the building process, targeting potential revenues from tolls. Equally as in the DCR model, there is no room for change order claims aiming at modifying the engineering designs, once these risks were widely assumed by the contractor upon bid and included in his offered price.

By the time the road is finished and the public partner accepts the final object, the population is able to utilize the public work, usage fares can now be required and the concessionaire's post-construction obligations arise in the form of operation and maintenance incumbencies.

As a consequence of this model, the private partner bears the charges of operating and maintaining the road for a large period of time (up to 35 years).

Hence, as part of its performance risks, in order to minimize maintenance costs, the private company is stimulated to employ high-quality, sound and durable techniques and materials during the construction that will ensure diminished repairing expenditures in the future.

Besides acting to reduce its costs, the concessionaire has a great incentive to keep the highway as a good pathway choice to users, once more usage represent more revenues from fares. Thus, as in any competitive market, the way private companies have to lure consumers is offering an efficient and safe service for an affordable and reasonable price. In order words, differently from the orthodox procurement models of Law 8,666/1993 and DCR, there is an innate interest from the private investor to deliver an attractive service to users, and keep the demand for that service in an optimum level.

From the example drawn, it is clear that the PPP model diminishes the government role, in the sense that it shifts significant efforts from the public sector to private companies. As private business firms become in charge of designing, constructing, managing and operating the public work, and performance liabilities are asked during

the concession period, there is a tendency to minimize repairing and operational costs, enhancing the work efficiency and sustainability over time.

Although not dealt in the previous instance, one extra major advantage of the PPP model is its capacity to attract private investments to public projects, sharing part of the onus of funding the constructions needed by Brazilian economy. And this feature relates to the way PPP projects are financed.

4.2. FINANCING A PPP PROJECT

In Brazil, the PPP model was designed to encourage efficiency in the provision of public infrastructure for the purpose of reaching social welfare. In the example plotted above, it was shown that the shift of engineering and performance risks to private partners certainly tend to improve both quality and sustainability in public constructions. Additionally from a mean of transferring risk, it can also be implemented to circumvent budgetary constraints, as a way of quickly providing infrastructure to the public, without having to initially disburse huge amounts of public funds for the facility⁵⁵.

One of the most common ways of implementing PPPs is through the concession approach, which consists basically in transferring final design, construction, maintenance, and operation to a private consortium, in exchange for which that consortium receives the right to charge a fee to the user or to the government on behalf of the user, for a period of time contractually agreed in advance⁵⁶. In this sense, PPP projects are commonly contracted providing remuneration for the private partner during the whole concession period.

But before establishing how much the concessionaire should receive for the service granted, the public administration must develop a life-cycle cost analysis, delineating an overall cost estimation of the entire project (including construction, operation and

⁵⁵ Andrew Arewa and Peter Farrell. 'The Private Finance Initiative: why Value for Money Remains Elusive'. PPP Doctoral Research Workshop. University of Central Lancashire, United Kingdom. October, 2011.

Available at: http://clock.uclan.ac.uk/2986/1/CIBTG72-ARCOM_Doctoral_Workshop_Proceedings.pdf

⁵⁶ Thais Rangel, José Manuel Vassallo and Blanca Arenas, 'Implementation of Safety Based Incentives in Public Private Partnerships (PPP): An Empirical Analysis for the Case of Spain'. PPP Doctoral Research Workshop. University of Central Lancashire, United Kingdom. October, 2011.

maintenance costs over time). And after estimating the global costs, government determines the amount of capital the private partner should provide for the project, setting up a percentage ratio to be contributed by both parties (some PPP contracts recently signed in Brazil have stipulated 20% equity for private sector contribution, which implies 80% of public funding in the project).

By designing this type of share, the public administration might be able to afford more constructions than it could not do by itself, reducing the amount of public money spent at the beginning of the project. This measure consists in an important and feasible way of diminishing public funding and improving private investments in infrastructure networks that can be exploited and managed as business opportunities⁵⁷.

Furthermore, as the private party will have to employ some amount of its own capital, there will be a major stimulus to properly estimate the costs, otherwise project profitability over time might be compromised, as its financial assessment becomes unreasonable⁵⁸. Even more, since most of the private capital inputs usually derive from financial institutions, such as development banks that must ensure that the project to be financed is actually lucrative, this instrument effectively adds an extra and external level of cost control and surveillance to the PPP.

Once the percentage of participation of the private partner is all set, government has to establish how the public funds should be raised to the project. And according to the Brazilian legal framework (Law 11,079/2004 and Law 8,987/1995), it can be designed in three different ways: through government and users payments combined; or through each one of these by itself.

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⁵⁷ As a matter of fact, the more attractive the project might appear (such as an airport in a big city, or a harbor in an important production corridor) and more robust the economic scenario seems to be in the country, the less public money should be employed in this projects. In United Kingdom, for instance, there is usually a percentage of 51% to 49% public to private sector contribution. Andrew Arewa and Peter Farrell. 'The Private Finance Initiative: why Value for Money Remains Elusive'. PPP Doctoral Research Workshop. University of Central Lancashire, United Kingdom. October, 2011.

Available at: http://clock.uclan.ac.uk/2986/1/CIBTG72-ARCOM_Doctoral_Workshop_Proceedings.pdf

⁵⁸ For financial evaluation of PPP projects, check the World Bank Toolkit for PPP in Roads and Highways. The Toolkit includes financial models (in graphical and numerical format) that can be used for the financial assessment of PPP toll roads. Likewise, this model may be used to assess the financial feasibility of availability payment (or annuity) PPP Projects in any transport infrastructure subsector (e.g., roads, rail, airports).

PPIAF/World Bank. 2009. 'Toolkit for PPP in Roads and Highways'. World Bank and Public-Private Infrastructure Advisory Facility (PPIAF). Washington/DC, USA.

Available at: <http://www.ppiaf.org/sites/ppiaf.org/files/documents/toolkits/highwaystoolkit/index.html>

One of the most traditional ways of publicly funding PPP projects in Brazil is through joint contributions from government and users. By means of this model, the public administration provides an initial investment tranche (usually enough to finance the construction costs of the project), and the costs of operation and maintenance shall be covered by usage fares borne by those who directly benefit from the work. This type of public financing is recommended to those PPP in which the cost to be passed on to users prove impracticable/unaffordable (due to initial engineering costs and risks), in the sense that it might curtail its access to nationals. Good instances of these are large hydroelectric power plants in remote areas (such as the 'Belo Monte'⁵⁹, 'Jirau'⁶⁰ e 'Santo Antonio'⁶¹ dams) and huge brownfield urban transport modals (like the Subway Line #4⁶² in Sao Paulo City).

In cases in which the initial investments seem to be moderate, PPP solutions may be designed to be entirely sponsored by users' fares. In such cases, no direct government fund is provided (there are no public budget expenditures) and the only revenues received by the concessionaire come from charges paid upon usufruct in the form of tolls, fees, levies, and so on. In general, this model works especially well in projects that do not require considerable new constructions in which the main goal is to transfer the operational and maintenance duties to the private sector, with the view of enhancing quality in already existing and provided services. Examples of these projects are transport corridors (mostly highways and railroads) that have been previously built at government's expenses but are in lack of repairs and improvements to match current traffic demands (e.g. 'Anhanguera'⁶³ and 'Tamoios'⁶⁴ highways in Sao Paulo State).

For last, there might be cases in which no usage contribution is employed, leaving all public funding of the PPP to be borne by government itself. This situation is commonly related to naturally disadvantageous business where there is no possibility of charging users for the enjoyment of the public good⁶⁵ and, therefore, it should be provided by government as a social burden. This is the case of public health

⁵⁹ More information at: http://en.wikipedia.org/wiki/Belo_Monte_Dam

⁶⁰ More information at: http://en.wikipedia.org/wiki/Jirau_Dam

⁶¹ More information at: http://en.wikipedia.org/wiki/Santo_Ant%C3%B4nio_Dam

⁶² More information at: [http://en.wikipedia.org/wiki/Line_4_\(S%C3%A3o_Paulo_Metro\)](http://en.wikipedia.org/wiki/Line_4_(S%C3%A3o_Paulo_Metro))

⁶³ More information at: http://en.wikipedia.org/wiki/Rodovia_Anhanguera

⁶⁴ More information at: http://en.wikipedia.org/wiki/Rodovia_dos_Tamoios

⁶⁵ In economics, a public good is a good that is both non-excludable and non-rivalrous in that individuals cannot be effectively excluded from use and where use by one individual does not reduce availability to others.

institutions, schools or penitentiary facilities that, according to Brazilian constitution, must be offered to society freely as public goods (excellent instances of such PPPs are the ‘Hospital do Suburbio’⁶⁶, in Bahia State, and the penitentiary complex of Ribeirao das Neves⁶⁷, in Minas Gerais State).

Thereby, by what was said, it’s reasonable to state that PPP infrastructure projects, besides representing a good way to improve the administration of services originally offered by government, are a feasible manner to attract private investments and reduce the related budget impact due to public constructions, as some of the public funding can be spread along the concession period. Thus, after taking these financing issues under consideration, one can list the greatest benefits stemmed from the PPP model and, then, register some basic requirements for its well-functioning.

4.3. PPP PROJECTS’ MAJOR ADVANTAGES

After conceptualize a PPP project, illustrating it with a hypothetical case for the Brazilian reality, and describe some of their financial characteristics, finally it will be summarized some of the major improvements that the adoption of this type of contracting model can generate for the infrastructure sector in Brazil. In short, one can divide such benefits as follows: (i) smaller amount of contractual arrangements; (ii) more efficiency in the construction process; (iii) more sustainability for the service granted; and (iv) possibility to attract private investments.

The first clear advantage of the PPP model is the diminished amount of contracts that have to be signed by government. As plotted in Figure 3, in a PPP the designing, constructing, operating and maintaining duties are assumed by only one entity, the private partner, selected in the market through one single bid process that gives birth to a unique contractual arrangement. This feature, besides reduce administrative costs regarding bureaucracy for bids and contract management within government, eliminates the problem of contractual interfaces⁶⁸ and induces a more reliable and

⁶⁶ More information at: <http://documents.worldbank.org/curated/en/2010/06/14357399/brazil-hospital-suburbio>

⁶⁷ More information at: <http://www.brasil.gov.br/cidadania-e-justica/2013/01/inaugurada-em-minas-gerais-primeira-penitenciaria-privada-do-pais>

⁶⁸ The term “contractual interface” refers to situations where two different companies are contracted to deliver services that are complementary to each other (in the sense that first’s output is the

stable legal relationship. In other words, as the public administration will contract only one company, there will be much more transparency and objectivity in the distribution of risks and responsibilities related to the project, from hiring until the whole concession period.

The second benefit deriving from the PPP model is the gain in efficiency in the construction process. Just like stated in the DCR, in PPPs the designing and building tasks are under the private partner's responsibility, leaving it free to choose an engineering solution in line with existing best standards on the construction industry, as well as dwindles the possibility of claims for changing orders in the contract. Moreover, as part of the concessionaire's revenues will come only after the construction process (during operation), to avoid profit reductions, the private partner has a major incentive to hasten the construction to quickly offer the work to users, mitigating the risks of delay in final delivery.

The third (and also unique) improvement stemmed from PPPs is the unquestionable enhancement in sustainability, which can be visualized in two different ways. Primarily, as the private partner bears the duty of operating and maintaining the work for a long period, it will be stimulated to employ sound and durable materials in the construction that will tend to reduce repairing expenditures along time, leading to high quality works, equipment and services delivered to society. Likewise, in PPP projects, performance risks are assumed by the private partner during the entire concession period, as the public administration introduces in the contract some performance based standards and indicators tied to bonuses and penalties to reward or punish the performance of the contractor along the concession period. The idea behind this performance risk policy is to encourage the private sector to manage and operate the infrastructure in the best way. To that end, differently from mere procurement contracts (when the revenues of the contractor are solely related to simple contract deliveries), PPP can be seen as performance-based contracts referred to different quality aspects such as availability, safety, and so on. Consequently, as long-term agreements in which the revenues tend to depend more and more on the quality of the services, this creates an additional reason for the

successor's input, such as the designing firm that delivers the engineering drawings to the construction company) and disagree in the distribution of contractual risks and responsibilities. The problem behind this dispute is that the public administration will need to intervene in this interface and settle down the disagreements, several times implying additional costs expended with this shadow area and usually postponing final delivery of the project.

private partner to provide an attractive infrastructure to users, making public constructions widely more sustainable.

Lastly, as a new trend in developing countries that have been facing budget constraints, the PPP model can also be used as a way to reduce government expenditure (or at least dwindle the amount of funds needed at once) and attract private investments to finance infrastructure projects. This peculiar feature is closely related to the assumption that public constructions can be managed as a business and explored as an investment opportunity that provide competitive rates of return with bearable risks. Under private management by a company accustomed to the infrastructure industry, the cash flow of the project might be designed not only to cover operating costs that otherwise would have to be borne by public funds, but also to finance additional enhancements that might optimize the public work offered to users, as well as allow the development of projects that would not come to fruition.

In short, nowadays PPP contracts represent a widely applied way to shift government responsibilities to the private sector, under the assumption that profit-seeking companies can manage better public constructions than any public agencies would be able to. By encouraging the PPP contractors to provide a high quality service, aligning the social and the private benefits, they will end up producing a more proper outcome for society, through more efficient and sustainable works. However, as PPP projects in infrastructure tend to have monopolistic features (as many duties are gathered and assigned to one single company), good governance in managing them is essential to ensure that the private sector's involvement effectively yields the maximum benefit for the public.

4.4. PPP PROJECTS' REQUIREMENTS

Despite all the potential goodies that the PPP model can generate, it is naive to believe that simply moving to the private sector what the public administration used to offer society will extinguish the depths of infrastructure Brazil has. PPPs are not a panacea.

More than two centuries ago Adam Smith⁶⁹ (1776) wrote that “a high road, though entirely neglected, does not become altogether impassable. The proprietors of the tolls upon a high road, therefore, might neglect altogether the repair of the road, and yet continue to levy very nearly the same tolls.” In this sense, to avoid situations as described by Smith, as PPPs reduce the government’s role in providing public constructions, they require good governance (an increased surveillance machine) to guarantee the desired efficiency and the planned sustainability.

Good governance in these cases requires (i) competitively selecting the strategic private investor, (ii) properly disclosing relevant information to the public, and (iii) having a regulatory entity to oversee the contractual agreements over the life of the concession⁷⁰.

The competitive selection of concessionaires, which is considered essential for economy and efficiency of the selection process, involves public advertisement, invitation to bid, bid evaluation, and award of the concession contract to the candidate that actually provides the best offer. To ensure competitiveness and equity in the bidding process is essential to avoid collusion between participating companies and/or unlawful favoring of bidders, which would result in a selection contrary to the public interest.

While competitive selection of the private investor is usually the preferred approach, sometimes private companies approach governments with new project ideas. For this reason, in Brazil, the PPP Act determines that every bid must be preceded by a wide public disclosure, which comprehends at least major newspapers and electronic media, and fixes a minimum term of 30 days to formally receive suggestions (Law 11,079/2004, Article 10, VI). Although this procedure might improve effectiveness in the bidding process, the proposals often become controversial if government alters the project determinants without sufficient transparency or competing proposals⁷¹.

⁶⁹ Smith, Adam. ‘An Inquiry into the Natures and Causes of the Wealth of Nations’.

Available at: <http://books.google.bg/books?id=C5dNAAAACAAJ&pg=PP7#v=onepage&q&f=true>

⁷⁰ Cesar Queiroz and Ada Karina Izaguirre. 2008. ‘Worldwide Trends in Private Participation in Roads: Growing Activity, Growing Government Support’ Gridlines series, n. 37, Public-Private Infrastructure Advisory Facility-PPIAF, Washington, DC, USA.

⁷¹ Cesar Queiroz, Nevena Vajdic & Goran Mladenovic. ‘Public-private partnerships in roads and government support: trends in transition and developing economies’ (2013).

Available at: <http://dx.doi.org/10.1080/03081060.2013.779472>

Besides securing a legitimate competitive bid, the public administration must make sure that the users know what to expect from the facility under concession, which means a transparency enhancement in the role of the regulator. To this end, full disclosure of the agreements must be granted to users/consumers as public information, in order to allow greater popular participation and social control, stimulating accountability for both parties. While not currently included in the Brazilian PPP Law, it appears appropriate that in future revisions a clause be added on the full disclosure of contract documents, although another Brazilian Act, Law 12,527/2011⁷², secures total access of public information to any Brazilian citizen.

Ultimately, as long-term agreements submitted to quality standards, it is essential that all PPP contracts stipulate performance indicators that can effectively assess the quality of service rendered to society; and, in fact, the Brazilian legal framework requires standards for designing, construction, operation, maintenance, and user's fare collection. But besides foreseeing performance indicators that actually allow measuring the quality of the service provided, it is important to tie the private partner's remuneration to performance issues, in the form of bonuses or penalties, as an incentive to keep high quality and attractiveness in the public work for the entire concession period.

Further than issuing good performance standards, the public partner must enforce such standards with an efficient oversight machine that enables users to reap maximum benefits of the public construction. As stated, PPP contracts generates an unavoidable monopoly in favor of the concessionaire; to prevent undesired behaviors in the management of the public work, government must improve surveillance over the outputs and assure compliance with the quality standards.

In Brazil, many agencies were created to regulate specific subjects of the economy, such as energy, transportation, water usage, health, oil, telecommunication, and so on; however, so far the main role played by most of these agencies has been enacting regulatory constraints to the private market, leaving its oversight apparatus to a secondary level. Considering the recent claim for more PPP projects in the country, these organizations' missions will need to be reviewed, as more and more public works will be offered to society by private companies.

⁷² Brazil 2011. Law 12,527/2011.

http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2011/lei/l12527.htm

In brief, PPP contracts may represent a good way to improve efficiency and sustainability in public constructions. Nonetheless, the simple shift of responsibilities from the government to some private partner will not assure the fulfilment of these goals by itself. As more and more tasks are transferred to the private market, there is an increase in demand for government surveillance. The public administration must ensure a perfectly competitive environment for the bidding process, as well as enforce the performance standards during the entire concession period. Otherwise, Brazil will keep on wasting citizens' money in low quality projects that will never overcome the economy's lack of efficient infrastructure.

5. CONCLUSION AND FUTURE RESEARCHES

There is no denying that the lack of proper infrastructure has been imposing significant limitations to Brazil's social and economic development. In recent years, the Brazilian federal government, in order to reduce a 15-year infrastructure gap, applied considerable amounts of public money (over US\$ 850 billion) on new projects regarding transportation (e.g., roads, railroads, ports, airports, waterways), energy supply, and buildings (e.g., hospitals, schools, penitentiary facilities). Yet, in spite of all these efforts, the most common situations observed after all these expenditures are cost overruns and delays, combined with low-quality and unsustainable constructions. Under this scenario, this paper argued that a drive to private investors may contribute to enhance public works efficiency and sustainability.

Back in the 1990's, Brazil lived a period of political and economic turmoil in which no private investment was employed in the country and all basic physical and organizational structures needed for the operation of the Brazilian economy belonged to the government. The public sector was responsible to plan, fund and operate all public works by itself, and the only role played by private companies were supplying the Government's desired constructions and goods. And reflecting that time picture, the general procurement and contracting Act (Law 8,666/1993) was enacted targeting to avoid corruption and determining that all public constructions should be done in order to keep under State control the responsibilities for planning, financing and, afterwards, operating and maintaining the infrastructure systems.

From the time the Brazilian economy showed signs of stabilization, a series of new investments began to be performed and notable demands for better infrastructure emerged. And, as government expenditure raised substantially, public construction contracts multiplied in a sudden, surfacing some flaws of the model created by Law 8,666/1993. Audits performed by the Brazilian Court of Audit (TCU) revealed delays, cost overruns, corruption and low-quality in constructions to be closely related to some defects and/or misapplications of the Law.

In 2011, the Brazilian Federal Government developed a new legal framework (Law 12,462/2011 - DCR), in an attempt to solve some of these problems and improve the efficiency of public constructions. This novel model, although tends to contribute to

reduce delays and increase efficiency by sharing engineering risks with private companies, still assumes that the government must be entirely in charge of financing and operating the constructed facilities.

Under these circumstances, considering the worldwide trend of transferring responsibilities to private markets and seeking investors to finance infrastructure projects, there is space for even more improvements that might be achieved by stimulating public-private partnerships (PPP).

In the PPP model, the private partner will be held responsible for the final engineering design, for providing all labor, materials and equipment related to the project, for constructing and, afterwards, operating and maintaining the facility during the concession period. Under a PPP, the entrepreneur may fund his project through public and/or private sources, never keeping out of sight that he is the one responsible for providing the service to the users in the quality and quantity determined by the contract. And with this performance commitment abided by the concessionaire, PPP projects are likely to reduce the time of construction and the investment costs, besides guaranteeing a much higher quality work provided to users.

Therefore, by simply shifting the public works to the private sector, leaving to the public agencies the task of securing a fair competitive market and maintaining an effective regulatory supervision, PPPs might be a key way to enhance efficiency and sustainability in public constructions.

This paperwork concentrated in presenting the legal framework concerning public procurement in Brazil, depicting some characteristics of each different law and highlighting the advantages stemmed from the PPP model. Even though some defects were plotted, the model of Law 8,666/1993 cannot be taken as unappropriated for every case, since PPP projects are not always actually feasible nor recommended. On the same sense, PPP contracts should not be considered as a miracle solution, as the more responsibility is transferred to the private sector, the more supervision will be asked from the government.

For future researches, one could focus on detailing key features of PPP contracts under the Brazilian laws, such as bidding criteria, liabilities, guaranties, performance

standards and indicators, objective risk sharing and conditions to extinguish the contracts.

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