CONTRIBUTIONS TO THE MANAGEMENT AND REGULATION OF THE USAGE OF THE SCHOOL BICYCLE IN BRAZIL

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ABSTRACT

The bicycle as a means of alternative transportation for state school students became the object of a Brazilian government policy in 2010. Based on studies that identified the potential of utilizing this means of transport and the already existent bicycle use in some of the country's municipalities, this vehicle technology was included as an alternative for the transportation of students in the National Program Way to School, run by Ministry of Education, which promotes the improvement of the country's primary education. As part of this program, the Brazilian municipalities may acquire bicycles through a nationwide tendering process. However, the delivery of bicycles to the students represents another challenge, which is related to how to distribute and control the distribution, usage and maintenance of this asset. In this way, this work aims at identifying the relevant aspects to be considered in managing and regulating the use of the school bicycle made available by a government program.

Keywords: school transportation, school bicycle, management school bicycle

INTRODUCTION

The importance of keeping students at school has been one of the challenges faced by the Brazilian government. Therefore, several state programs and policies are being implemented

with the aim of promoting equal conditions in the access to a quality school. The Federal Government actions addressed to school transportation – ST – have the objective of ensuring safe and quality transport to students and contributing to the reduction of school dropout. Thus, students' access and regular attendance at state schools have been offered using bicycles as a means of transportation or to complement access by bus or boats, according to the region.

The bicycle as a means of alternative transportation for state school students became the object of a policy by the Brazilian Federal Government in 2010. Based on studies that identified the potential of this kind of transportation and its already existent use in some Brazilian municipalities, this technology was included as alternative to the transport of students in the National Program Way to the School (in Portuguese, Programa Nacional Caminho da Escola), run by the Ministry of the Education to promote the improvement of the country's primary education. Through this program, the Brazilian municipalities may acquire bicycles through a nationwide tendering process. However, the inclusion of the supply of bicycles to students represents another challenge which is related to how to distribute and control the distribution, usage and maintenance of this asset. In this way, this work aims at identifying the relevant aspects to be considered in a management and regulating process of the use of the school bicycle made available by a government program.

TRANSPORT: BICYCLE

It is very difficult to establish when the invention of the bicycle as a means of transportation occurred. Several authors maintain that the bicycle appeared as a result of the work of the French comte Mede de Sivrac, whereas others consider that its creation happened later than that. However, there are records that the ancient Egyptians knew this means of locomotion as they already represented a vehicle with two wheels and a bar over them in their hieroglyphs. After this event, the bicycle received successive technical modifications, such as gears and the free wheel. Nowadays, new improvements have been made so that the bicycle has become more comfortable to use and more efficient as a sports device. Thus the bicycle is a vehicle with two wheels held together by a frame and moved thanks to the effort of its user through the use of pedals.

Although the society attributes a secondary role to cycling as a means of transport, it is indisputable that there is a sustaining and increasing trend in the use of bicycles in Brazil. In 2007, Brazil produced 5.5 million bicycles, which makes it the third world's largest producer and consumer of bicycles (ABRACICLO, 2007). In addition, in 2007, Brazil was the 5th largest consumer market of bicycles in the world and had a fleet of 65 million bicycles in the streets. Out of the 5.5 million bicycles produced that year, approximately 1.2 million were produced in the Free Economic Zone of Manaus (in Portuguese, Zona Franca de Manaus), 0.9 million in the Northeast and Central-West regions and 3.4 million in the Southeast and South regions. In 2008, approximately 5.8 million bicycles were sold in Brazil, an increase of 7% compared with the previous year. In the next years, it is expected that this growth will continue, sustained by economic stability and favorable circumstances created in the

country, which will host the World Cup, in 2014, and the Olympic Games, in 2016. It is estimated that in 2011 and 2012 more than 6 million unities were sold (MARQUES, 2009).

ABRACICLO (acronym in Portuguese for the Brazilian Association of Manufacturers of Motorcycles, Motorized Bicycles, Motor Scooters and Similar Vehicles) estimates that the use of bicycles is distributed as follows: 32% by children; 17% for recreation and leisure; 1% for competition.

In general, cyclists do not use a bicycle only for leisure or transportation, but also to go to school, the supermarket and work, among others destinations. Many say that, in addition to having health benefits, cycling is a good way to save fuel, transportation fees and time, though, sometimes, it is the only locomotion option besides walking. Culture is a strong factor in the determination of the habits of cyclists. The prevalence of some characteristics related to the usage and the vehicles have been observed, which may be related to local traditions. In some places, particularly in the less developed regions, cyclists cannot afford the costs of maintaining their bicycles. It is then common to find old rusted vehicles without break and with broken saddles and pedals or even some without being utilized due to a flat wire. Nevertheless, these are not problems that prevent people from keeping on using their bicycles.

The school bicycle

Grounded on studies that identified the potential of the utilization of this kind of transportation and its existent use in some Brazilian municipalities, this vehicle technology was introduced as alternative to the transport of students in the National Program Way to the School, run by the Ministry of Education, that promotes the improvement of the country's primary education. As part of this program, the Brazilian municipalities may acquire bicycles through a national tendering process. The following criteria were taken into consideration as requisites for the school bicycle: safety, usability and functionality, quality, comfort, strength and durability, cost and unisex design.

Based on these criteria, two school bicycle models were developed: one with 20 and another with 26 inch wheels. Both models have the same components, although some of them have different dimensions. The school bicycle models have 29 specifying items: frame, fork, handlebars, handlebar holder, movement direction, handle, chain, chain guard, brake, brake lever, crank, pedal, rear luggage rack, side stand, front hub, rear hub, rims, spokes, tires, tubes, saddle, seat post saddle, fender, clamp, front crown, freewheel, bottom bracket, paint, safety equipment.

• 20 Inch Wheel School Bicycle Model
This model was developed for the youngest students who are in general 7-10 years old. Its name is a reference to the size of the vehicle's wheel, which has a diameter of 20 inches.

• 26 Inch Wheel School Bicycle Model

This model was developed for the oldest or bigger students who are in general enrolled in basic or secondary education schools. Similarly to the model mentioned above, its name is a reference to the size of the vehicle's wheel, with 20 inches of diameter.

(a) (b)

Figure 1 - 20-inch (a) and 26-inch (b) strengthened bicycles for school transport.

THE SCHOOL BICYCLE AND THE PUBLIC AUTHORITIES

The use of bicycles by children and teenagers to go to schools is widespread in a number of Brazilian municipalities and is motivated by several factors such as (a) deficient urban and rural collective transport; (b) lack of road access for motor vehicles in some parts of the ways; (c) the vehicle can be driven by people at any age; (d) the vehicle's low cost of acquisition. There are also situations in which the bicycle is utilized in stretches from the child's home and a location for boarding on another school transport type or from the disembarking point of a transport method to the school. The main difference between the usage of the bicycle and the utilization of other means of school transportation consists, essentially, of the basic characteristic of the bicycle, which is in general conducted by the student herself, who owns the vehicle and is able to draw her own route, acquiring, in this manner, more autonomy in her/his locomotion. Cultural aspects and market availability directly influence the habits of bike's users, as well as the prevailing models in each region. There are several models offered, some of them intended for competitions and sports, but in general the students of the public school system utilize functional and leisure bicycles to cover the route to school.

The Brazilian Constitution ensures universal access to basic education. Nevertheless, in a country like Brazil, the existence of school places is not enough to guarantee that right. To ensure that a student attends classes and continues to be enrolled, it is crucial to offer a number of additional services and rights, among them school transport, especially for the five million students who live in rural areas. Due to the legislation and to overcome several

bottlenecks, the country needs to face the challenge of building a school transport system with a minimum of comfort and safety standards for students in rural and urban areas.

Similarly to the themes referring to the legislation, studies point out that the Public Authorities must act as catalyzing force in the process of raising awareness among actors, which, again, proves the need for actions coordinated in multiple sectors. The legislation itself may make the role of each of the involved parts more transparent.

DISCUSSSION ABOUT THE OFFERING OF BICYCLE FOR PUBLIC SCHOOL TRANSPORTATION

The offering of bicycle public school transport needs to be analyzed in a differentiated way. The bicycle is seen as a public property because it is acquired with public resources and is aimed to be used directly by the society (schoolchildren). According to Furtado (2007), Brazilian Scholars note two aspects when classifying assets as public property: i) ownership of the assets; and ii) the intended purpose of the assets. The first aspect assigns public good nature to assets owned by legal entities of public law. On the other hand, the second approach defines goods as public if they have their use associated with the accomplishment of a state activity or if they are intended to be used directly by the population.

Nevertheless, among these concepts, it is noteworthy the prevalence of the definition established by Article 98 of the Civil Code, in 2002, which determines that “national domain assets that belong to legal persons governed by internal public law are public; all the remaining are private, regardless of who they belong to” (BRASIL, 2002). In this sense, it is necessary to discuss the destination of the school bicycles that are considered a public asset at the moment when they are acquired by the Public Administration as a complementary alternative for schoolchildren transport. The right to property exercised by the State over its assets is defined by public law and by property regulations of the civil legislation. The Civil Code presents three kinds of public assets as consequence of their end use (affectation and unaffectation): i) goods of common use; ii) goods for special use; and iii) proprietary goods (BRASIL, 2002).

Goods of common use are intended to the general public, regardless of any expression or authorization from the Public Administration. However, despite their destination for usage by the entire population, they are subject to eventual conditions and restrictions of use according to laws or regulations. Goods for special use are those intended for Public Administration’s use or establishment. In other words, they are destined to be used by institutions and public organizations but not directly by the population in general (BRASIL, 2002). According to Furtado (2007), assets for special use are peculiar because they form the basic structure that is employed by the Public Sector to offer services or perform any public activity. In relation to the proprietary assets, the Civil Code establishes that they are those that constitute the assets of legal entities under public law, such as objects of personal right, or real, that belong to each of these entities. Thus, goods belonging to legal persons governed by public law that were given private law structure are considered proprietary

(BRASIL, 2002). In this manner, the school bicycle, as well as every good acquired with public resources, can be classified as a public good of common use and, in this manner, the public manager must establish norms to define its delegation of use or alienation.

Delegation of Use of Public Assets

Public assets cannot have their use regulated by private law. In this way, only through instruments of public law, such as usage authorization, permission, concession or cession, could these affected assets (of common and special use) be subject to transfer to private persons (FURTADO, 2007).

The authorization of use is the instrument employed by Public Authorities to allow a public good to be used privately in a precarious and transitory manner by a person. It is a mode for delegation of use formalized through an administrative precarious act, i.e. the Public Authority may revoke it at any time. To allow that the transfer of use of the public good to a private person happens through this instrument, it must be observed: i) the interest of the private person using the public good that cannot conflict with the collective interest; ii) the discretion of the Public Administration; iii) the transience of the use of the good. Finally, it is highlighted that, concerning the authorization of use, a tendering process in advance is unnecessary and, as it is not subject to a contract, the dispositions established in Law 8.666/1993 are not applicable to it. In addition, the authorization of use can be free of charge and expensive according to the applicable legislation (FURTADO, 2007).

The permission of use is quite similar to the authorization. Scholars highlight that the criteria that distinguish them is the period for utilization of the good (MELLO, 2007; JUSTEN FILHO, 2005). Thus, permission of use is characterized by: i) formalization through discretionary and precarious administrative act; ii) the choice of those interested in using the asset must ensure equal opportunities procedures and must be done through objective criteria; iii) it may be without charge or costly; iv) it may have a certain length (qualified or restricted permission) or indeterminate duration; v) its establishment depends on the understanding that the transfer of exclusive nature of the public asset to the private person is convenient and timely. Thus, permission of use is defined as the manner through which the Public Administration permits the use of a public good as a particular one in a private and continuous mode (FURTADO, 2007).

The concession of use is an administrative contract through which the Public Authorities confer to a certain person the exclusive use of a public good, irrespective of the major or minor public interest of the conceding person (CARVALHO FILHO, 2005, p. 877). This mechanism is characterized by the formalization method (contracts) and by the need for the definition of a time limit. This instrument is recommended due to its contractual nature (regulated by Law 8.666/93) as one that provides more safety to whom the good will be transferred. In addition, as it refers to contractual formalization, the concession of use must be preceded by bidding (FURTADO, 2007).

Alienation of public goods

Law 8.666/1993 establishes rules for biddings and administrative contracts related to building works, services, including those linked to advertisement, acquisitions, alienations and rentals in the sphere of the Union's Branches, states, the Federal District and the municipalities. In relation to the alienation of public goods, session VI (Articles 17 to 19) of the Tendering and Contracts Law sets the basic rules for alienation of public goods (BRASIL, 1993). When referring to movable property, in this case a bicycle, the law establishes that the alienation is of public interest, requires beforehand evaluation and tendering through auction or concurrence, although sometimes this may be dispensed with. As an example, in the case of donations, they are only allowed for social purposes and use after an evaluation of its timing and socioeconomic convenience when compared to another form of alienation (BRASIL, 1993). Concerning donations, the legislation establishes that the donation with costs will be done through a bidding process in which its costs, deadline for compliance and reversion clause will obligatorily be specified under penalty of nullity of the act, though a tendering process will not be required in case of public interest properly justified (BRASIL, 1993).

Maintenance of the school bicycle

Maintenance of the bicycle is a relatively simple process. It occurs in all the municipalities that have been investigated about the school bicycle, even when they were small urban centers. The maintenance takes place in shops created to provide technical support to the several bicycle brands available in the market. In such establishments, besides general maintenance, parts (frames, assembled wheels, gear shifters etc.) e even second-hand bikes are sold. However, not all bicycle owners can afford to keep regular maintenance of their vehicle at a certified technical assistance provider, which is extremely important not only for the safety of the cyclist but also of the traffic in general. In any case, during the period in which the study was conducted, very often parents and schoolchildren were seen doing both preventative and corrective maintenance of their bikes, focusing on brake adjustments, patching of tires tubes and repositioning of chain.

In this way, many of the bicycles' most trivial mechanical problems were solved or minimized. Other frequently observed problems were dependent on parts' reposition, such as a broken or absent saddle, worn tire tread and damaged pedals. According to several reports, when the needed repairing reaches bigger proportions, some families may even abandon the use of the bicycle due to lack of money, carrying out the required maintenance, , months or even years later.

This maintenance procedure is applicable to bicycles in general, including those for school use. The school bicycles distributed by the Public Administration in four of the municipalities surveyed were all lent to students whose legal guardians arrange for conservation and maintenance services and, when needed, parts reposition. Thus, as the respective municipalities deliver these bicycles but do not provide technical assistance to the vehicles, they receive maintenance that is similar to that given to the bikes for general use, which

makes necessary that the government exerts control to offer minimal safe transport conditions to its user students.

EXISTENT EXPERIENCES

Via the studies conducted by FNDE (2010), it was identified that the bicycles utilized as school transport method in some Brazilian cities were acquired and maintained by the students themselves or by their parents. When the bicycle is donated by the municipality's government, two ways to hand over the bicycle for school transportation are applicable according to the Brazilian legislation: cession of use (loan) and donation. The experience in some of the country's states is following:

São Paulo

São Paulo's state, through the Solidarity and Social and Cultural Development Fund, run by the Secretary of Education, launched the program "Cycling and Learning" (in Portuguese, Pedalando e Aprendendo) that established social partnerships for the donation of new bicycles and helmets to children aged 11 to 14 years and for training in assembling, maintenance and reparation of bicycles. According to the program, São Paulo's municipalities that are apt to receive the bicycles donated must have low HDI (Human Development Index) and maximum population of 5,000 inhabitants The children benefitted must fulfill the following criteria: (a) be enrolled in a state-owned school; (b) their monthly familiar income should be equal or lower than the value of one minimum wage; (c) their school attendance must be higher than 80%; and (d) they must have proved progressive performance according to criteria defined by the Secretary of Education. The municipalities that may apply to the program must: (a) have a significant number of bicycles in the urban area; (b) have an extensive network of bicycle paths; (c) offer bicycles as means of transportation for less favored citizens. The young population must: (a) be enrolled in the state's public education system; (b) have proved school attendance; (c) have monthly familiar income not higher than two minimum wages. There are various donors, especially among banks and the industrial sector.

Paraíba

Paraíba State's government implemented in 2009 the program "Cycle Paraíba" (in Portuguese, "Pedala Paraíba"), which consists in offering bicycles as an alternative transport method to the students of the state's educational institutions. In the pilot project, only students enrolled in 31 public schools of ten cities, namely Bayeux, Bom Sucesso, Cabedelo, Catolé do Rocha, Nova Palmeira, Patos, Pombal, Riacho dos Cavalos, Santa Rita and Sousa, were allowed do participate. These municipalities immediately received 2,500 bicycles. A tendering process for the acquisition of 10,000 more units was launched with the objective of extending the program to other schools and municipalities and even to students of fundamental education institutions (PARAIBA, 2009).

This program's bicycles are given to students enrolled at the beginning of the first school semester through a term of compromise signed by the legal responsible for the pupil. If the agreement is given up or the student leaves the school, the bicycle must be immediately returned to the school's direction, which will send it to the State's Secretary of Education so that the vehicle can be ceded again, as specified in the criteria defined by the state Law nr. 8.719/2008 that rules the program (PARAIBA, 2009). According to this State's official source of information, those benefitted may fulfill the following criteria: (a) must be enrolled in a public school run by the State; (b) must have 10 or more years of age; and (c) the distance from their home to their school must be between two and ten kilometers. The maintenance of the bicycle is of entire responsibility of the person responsible for the child. The funds aimed at the program come from the Secretary of Education and Culture of the Paraiba's state.

Piauí

In 2005, in the municipality of Floriano, Piauí's state, it was implemented the project through which bicycles were distributed for school transport in supplement to the seven school bus transportation routes in the rural area. The municipality's Secretary of Education explained that a part of its students had to walk long distances to reach school, which could generate school dropout. Therefore, it selected 32 students enrolled in the 5th to the 8th grades who lived in communities distant from their schools in an attempt to keep them in the classroom (FLORIANO, 2006). Similar to what happens in programs like the Textbook Program (in Portuguese, Programa do Livro Didático), the bicycles are redistributed to other schoolchildren living in the municipality's rural areas when its users leave the school. The program has benefitted more than one hundred students (FLORIANO, 2008).

In the city of Castelo do Piaui, in 2009, the local government set as a target to lend 50 bicycles through contracts with students. The contracts would be followed by a term of compromise regarding the students' school attendance as well as the devolution of the bike to the respective Municipal Secretary of Education if the student abandons the course or at the end of the seven months of the loan's period. There is also the commitment of the person responsible for the student of conserving and maintaining the bicycle during this period (CASTELO DO PIAUI, 2009).

The criteria adopted by the Piauí's municipality for the selection of the students to be benefitted were the following: (a) they must be enrolled in municipal schools that provide fundamental education in the rural zone; (b) they must have from 10 to 14 years of age; (c) they must belong to a low-income family; (d) they cannot be benefitted by school transport (motor vehicles). This project entitled "Cycling to success" (in Portuguese, Pedalando para o Sucess) states that the funding of the bicycles must be provided not only by resources from the education budget area, but also by donations from NGOs, companies and other partnerships.

SO WHAT HAPPENS TO THE SCHOOL BICYCLE?

In other words, the series of surveys makes it clear that offering quality rural school transport is a challenge to be faced by the entire society that ought to pay a moral debt to our students of the countryside who, for a long time, have been left to their own fate. The Brazilian Constitution ensures universal access to basic education, but the mere availability of school places does not guarantee the exercise of this right.

The process of changing the legal framework, however, is a complex mission. Brazil is a federative republic where the Union, the states and the municipalities possess their own responsibilities and, in addition, degrees of autonomy. In this manner, the most feasible is that the legislative proposals take into consideration the country's different realities. Thus, it would be natural if the Union established general rules and the subnational entities discussed and approved bills that regulated the offering of services in the sphere of their federative competence according to their specificities and demands.

Besides the legal issues, the importance of the actors involved in the process is highlighted. Unavoidably, the array of relations between these sectors directly affects the quality of the service offered. In a significant part of the cases, relationship problems among actors reflect lack of awareness about the importance of the role of each one. In this way, all actors in this network need to understand the need for acting as school transport facilitators, which, sometimes, may entail giving up part of the individual interests in benefit of collective gains. Similarly to the issues related to the legislation, the studies indicate that the Public Administration must act as a catalyzing power in the process of sensitizing the actors, which, again, makes the need for coordinated actions in multiple sectors clear. Even the legislation can make the role of the parts involved more transparent. In other words, the series of surveys make it clear that the challenge of offering quality rural school transport is a challenge of the entire society that needs to pay this moral debt to our students who, for a long time, have been left to their own fate.

Some elements are decisive and fundamental in the configuration of the local difficulties, needs and realities in relation to the management of rural school transport. Among these elements are the states' and municipalities' institutional and financial capacity, the climate aspects including rainfall distribution and temperature, the region's natural geography, including soil and vegetation, as well as regional, local and specific cultural issues of certain communities.

As it can be observed, the management and regulation of the bicycle for school transport requires the comprehension of the existent aspects in the school transport system in which the bicycle was introduced. This is necessary because each component of the ST directly or indirectly affects the utilization of the bicycle as an alternative means of transportation. It is up to the manager to define the process to be adopted for the delivery of bicycles to the students, be it through donation, concession or another model. Furthermore, the rules for donation and for concession must be established specifying which standards should be

defined to identify which students will receive the bicycle, in other words, to define the criteria to be adopted in the decision about the students to be benefitted with the service.

In addition to the rules for donation or concession, methods for maintenance of the bicycles must be established, which means to define who is in charge of this service, if the executive of the municipal government, the secretary of education, the school or the student. If it is decided that this is a responsibility of the public entity, it should be clarified how and with which resources it will be done. Still, when it refers to the maintenance, access to parts and accessories should be secured, as well as specialized technical support.

With regards to the actors, rights and duties of each of them must be defined, as well as the relation between managers and students. This is the moment when students with potential to be benefitted by the service are identified.

Very often, relationship problems between actors are a reflection of insufficient awareness about the importance of their role. In this sense, all actors of this network need to understand the need for acting as school transport facilitators, which, many times, may mean giving up part of individual interests for the sake of collective gains.

Knowing the local difficulties, needs and realities and the way these factors may affect transport management is fundamental in the creation of public policies that efficiently contribute to the improvement of the rural school transport system offered to the students. Both public policies formulated at the national level as those established by states and municipalities have the ability to change the current quality of rural school transportation as they can determine uncountable aspects of the implementation management and of each of its phases.

However, it is necessary to assess the capability of those in charge of the school transport management to adopt and follow the principles established by public policies. Many times, general principles may not be applicable to diverse realities due to their inadequacy to the peculiarities of a certain region or municipality. It may also occur that it is impossible to follow general norms not because of lack of adequacy to the local reality, but simply because of lack of financial and human resources. In this manner, instead of improving the school transport of these students and hereof contributing to their performance, public policies may in fact not only contribute to reduce the quality of this kind of transport but also to make its provision unviable if there are requirements that those in charge of the management are not able to fulfill.

CONCLUSIONS

Given the above, it is observed that the introduction of the bicycle must be considered as an integrating element of the school transport as it is the cheapest method in relation to acquisition and maintenance, contributes to physical and mental wellbeing, promotes autonomy, time and pre-established route flexibility, rapid dislocations, and reduced need for space for storing it.

However, the aforementioned aspects of the implementation of the rural school transport management confirm the need for understanding the local realities and needs, as well as the diverse difficulties found in the delivery of the transport with the purpose of implementing and obtaining satisfactory results in each of its phases (planning of operation and programming, delegation of the service to a provider, control of the service provided, organization of payment to the service provider and maintenance of the vehicles used for the transport).

Moreover it can be observed that it is crucial that managers guarantee a minimum of infrastructure to make it feasible students' dislocation by bicycle in the route home-school-home. Thus, adequate roads, proper places for storing the vehicles in the schools and signaling of the streets, particularly in areas where there is conflict with other transport methods, must be planned and built.

As a result, the considerations made so far, with some examples of the elements that make up the school transportation system with the inclusion of the bicycle as an alternative transport method for public school students, must be done for all other elements that comprise the semantic network of that system. In this manner, it is possible to notice the complexity of the issue and the need for managers' extensive knowledge about the services offered by them.

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