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Course: Independent Project
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Proposal for Independent Project

Improving Urban Transportation through the European Experience:
The Case of Brasília, Brazil

Introduction

We live in a planet with finite resources, but human beings are rising in numbers and consuming in an infinite way. As a result, depletion of natural resources and environmental degradation increases each day. Serious measures should be taken soon; otherwise in a near future the world will be facing huge problems.

As more and more people live in cities, urban planning plays a fundamental role to address environmental and social issues. Sustainable planning could help improving the actual situation. Some European cities are already doing this. The proposed study will address how these cities could share their experiences with the capital of Brazil, Brasília.

Cities are living organisms with lots of people consuming products and services and producing lots of waste. Large amounts of energy, food, water and other materials are necessary to support urban population. The challenge is how countries attend all these growing demands. The impact of this rising population and consumption generates a huge amount of carbon dioxide emissions. *Carbon dioxide emissions are almost twice as high in the US as in Europe. This suggests that cities, through their spatial organization, their management, practices, and the development of their economic bases – can be the locus for significant reduction in demand and pressure on the planet's resources and ecosystems[1].*

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[1] Beatley, T. (2000), "Green urbanism: learning from European cities", Island Press.

Some environmentalists believe that it would be very difficult to reduce carbon emissions to a safe level without curbing population growth or without planning our cities in a more sustainable way[2]. How is it possible to have more environmentally sustainable cities? What is the process to achieve this goal? European cities have many answers to these questions. One important development that cities such as Berlin, Amsterdam, and Paris have made was in transportation. They invested significant resources to integrate their transportation system and also invested in greener transportation modes. Cycling, walking and public-transit are some alternatives that have shown to be efficient in order to reduce carbon footprint and improve the quality of life. Each city mentioned above may have important lessons to share with Brasília.

Problem

There is broad understanding among policy-makers and specialists that car-oriented cities must change.[3] The proposed study will assume that a city which does not depend on cars offers a higher quality of life to its population than one that it does. It is supposed to emit less carbon dioxide and has a healthier population. Traffic, noise, air pollution, central city poverty and degradation of scenic areas are some of the problems linked with urban sprawl.[4]

Brasília's urban sprawl with low-density occupation and car dependency make sustainable types of transportation quite hard to implement given the long distances between most residential and commercial areas. There is limited investment in an integrated transportation system for the city. There is long waiting hours for passengers between the initial and final destination, lack of safety and insufficient number of buses and subway lines to address all the demand. Finally, the city has a modern design and since its foundation there have not been much concern about developing an efficient public transit system. The city was designed for cars, but not everybody can afford having one.

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[2] Idem.
[3] Bratzel, S. Conditions of success in sustainable urban transport policy – Policy changes in 'relatively successful' European cities, Transport Reviews, 1999, Vol. 19, No. 2, 177-190.
[4] Ewing R, Pendall R, Chen D. *Measuring Sprawl and Its Impacts.* Washington, DC: Smart Growth America; 2002.

The study will discuss the reasons as to why a planned city like Brasília is a car-dependent one. As further explained in the background section below, Brazil's capital had the opportunity to develop an integrated system of transportation offering a better condition of mobility to its community and it did not.

Rapid urbanization is also an issue across the Atlantic, in Europe. The variety of solutions that European cities give to their urban sprawl deserves attention and replication. The study will also demonstrate how European cities such as Berlin, Amsterdam, and Paris address their transportation issues and how some of their lessons may apply to Brasília.

These are some of the specific questions the proposed study will try to address:

a) What are the problems with Brasília's transportation system and what should be done to increase its efficiency?

b) Would there be tangible environmental quality gains for Brasília to change and become a non car-oriented city? What are the advantages and disadvantages of a potential transition process?

c) What Brasília should learn from European cities in order to improve its transportation modes and its community's quality of life?

d) Is it possible to transfer European good practices in transportation systems to a city like Brasília? What could help and what are the obstacles in this process?

In summary, the study departs from the premise that cities should be less dependent on cars, and will use Brasília which is heavily dependent on cars and compare it with European cities which have a more versatile and integrated transportation system.

Background

In 1956, President Juscelino Kubitscheck de Oliveira ordered the construction of the new capital, Brasília with the explicit purpose to develop and populate Brazil's Midwest. Workers from all over the country went to Brazil's "central plateau" to help build the new city. The city was built in 41 months, and officially inaugurated on April 21st of 1960.

Brazil´s capital resembles the shape of an airplane. Its form is emphasized by the Highway Axis (Eixo Rodoviário), which curves from the north to the southwest and links Brasília's main residential neighborhoods, and the straight Monumental Axis (*Eixo Monumental*), which runs northwest-southeast and is lined by federal and civic buildings. At the northwestern end of the Monumental Axis are federal district and municipal buildings, while at the southeastern end, near the middle shore of Lake Paranoá, stand the executive, judicial, and legislative buildings around the Square of Three Powers, the conceptual heart of the city.

Brasília is recognized as a city of high wages due to public servant employment which pays very well. It has the second highest gross domestic product of the country. The prospect of employment opportunities and a high quality of life have attracted people from all over the country. The adverse consequence of this is that a city which was planned to have 500.000 people now has approximately 2.600.000 inhabitants.

The original urban plan was designed to have a city where transit flows easily within the wide streets. Nevertheless, a great deal of the original planning had to be changed because of the Brasília's growth, which exceeded its potential. In the satellite cities (26 small cities around and completely dependent to Brasília) had a huge expansion. Thus, Brasília has a great problem of traffic jams, especially in the peak hours, lack of parking places and insufficient transportation options.

The subway system was created in 2001, but it is still very small (only 24 stations and two lines) and does not address all the important destinations. *The Brasilia metro is not much comprehensive (buses may be a better way to get around the Pilot Plan, which is the central area*

of the city)[5]. In addition the stations are distant from each other. Brasília's metro needs to expand to meet the increasing demand. The subway departs from the main bus station and goes only southwards. It doesn't go to most important political and tourist areas of the city.

The metro serves the population of the largest satellite cities and not much people from the central areas. There are more people living in the satellite cities than in the Pilot Plan (the census of 2000 indicated that *Ceilândia* had approximately 344,000 inhabitants, *Taguatinga* had close to 244,000, while the Pilot Plan had roughly 200,000 inhabitants)[6]. The problem is that most people from the satellite cities depend on public transportation.

Brazilian urban buses are inferior to those which run in Europe[7]. There is a main bus hub called *Rodoviária*, which is the Central Bus Station, situated in the heart of the city, in the Three Powers Square. The original idea was to offer to the community a bus station as near as possible of every corner of the Pilot Plan[8], but today, the Rodoviária is just for urban buses. Buses leave from there to within the Pilot Plan and others connect the satellite cities to the center of the city. Due to the excessive growth of Brasilia, the inter-State buses station is situated at the western end of the Monumental Axis.

The bus system covers all satellite cities and the Pilot Plan. However, the systems are not integrated and depending on where the person lives it could take hours to arrive at the final destination. Commuting to work from the satellite cities could take more than an hour. Many people who live in the suburbs work in the central area of Brasília. Most of the jobs are in the Pilot Plan, which means, the central area of the capital.

 According to the Secretary of Transport of the Federal District "the number of cars in Brazil has doubled over the past eight years and 500,000 vehicles turned over 1 million.[9]" Brasília wide avenues promote the use of cars. All people with middle to high income have cars. As Brazilian economy has improved dramatically in the last two decades, low income families are starting to

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[5] Available at: http://www.aboutbrasilia.com/facts/metro.html
[6] Idem
[7] Available at: http://www.aboutbrasilia.com/facts/buses.html
[8] Idem
[9] Available at: http://www.st.df.gov.br/003/00301009.asp?ttCD_CHAVE=59432

afford cars as well. On the high income end, a family with five adults probably would have five cars, one per person. Bad planning and extremely modern architecture led to an extreme use of cars with few buildings close to the other. In many areas, it is virtually impossible to walk from one place to another. The city was not made for pedestrians because distances are too great. There are not many suitable sidewalks for walking on the downtown area, so people who afford having a car, do not think twice.

Brasília's most acute transportation problem is the time it takes to commute. As mentioned above, *Brasilienses* prefer to use their cars instead of any other type of transportation. It is clear that with an inefficient metro system and lack of integration among bus and metro systems, the use of cars has just increased throughout the years. Being a World Heritage Site protects the city, but at the same time freezes the development and creative alternatives to improve the transportation system.

According to an article published in the most important newspaper of the capital, *Correio Braziliense*, on July 21st of 2010, the Department of Motor Vehicles (Detran) stated that 1,182,368 vehicles has been registered till June 2010 in Brasília[10]. The average of fleet's growth in the city is around 8% per year. Last year traffic made 424 victims, 27.1% or 115 people were on foot when they lost their lives and 42 (9.9%) were cyclists. Most of them shared the space with the cars because, despite Brasília´s flat topography - highly appropriated to bicycles – the city has just completed 42km of bike lanes.

For the Superintendent of the National Institute of Historic and Artistic Heritage (Iphan), Alfredo Gastal, "*the city's landscape is being destroyed by the excess of cars.*" He criticizes the lack of investment in public transport. "*We have 2.2 people per car in movement, a very high rate,*" said Gastal. He added that it is unacceptable that Brasília´s government does not invest properly to build roads for cyclists. It would be a great way to take the street cars and reduce traffic, "said the prosecutor for the Defense of Urban Order Luciana Medeiros, prosecutors in the District[11].

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[10] Available at: http://www.correiobraziliense.com.br/app/noticia/cidades/2010/07/21/interna_cidadesdf,203591/index.shtml
[11] Idem

In summary, Brasilia has a lot of issues to solve in its transportation system. Traffic, noise, pollution, lack of parking are some problems that the community needs changes. European cities such as Berlin, Paris and Amsterdam have some good practices that could help Brasília to improve its mobility.

Methodology

Proper policy analysis which can result in practical and sound recommendations is always challenging regardless of its context. Opinions may vary and data is often scarce. Comparisons can be useful though it is extremely hard to find two identical situations. While one could look at a number of different methodologies to undertake the proposed study, pertinent, comparative "case studies" were selected as its principal preparation method.

Considering that Brazil is a country in intense economic and social transformation, it was found to be useful to see what more consolidated societies could offer when it comes to more effective and environmentally sound transportation systems. It is noted, however, that the exercise of examining an urban policy issue in a complex developing country such as Brazil and comparing with more consolidated urban settings such as selected European cities can be tricky as well as challenging.

While it is easy to find a number of books and papers on "lessons learned", the specialized literature is limited when it comes to the *effectiveness* of cross-national transfer of environmental experiences. This is amply demonstrated in the case of the US which is a great exporter of policies to other countries but finds it challenging to absorb experiences from abroad.[12] Such experiences worldwide tend to be understudied or misunderstood. Hurried conclusions without careful consideration are often drawn which may not apply to the "transferee".

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[12] Dolowitz, D. and Medearis, D., "Considerations of the obstacles and opportunities to formalizing cross-national policy transfer to the United States: a case study of the transfer of urban environmental and planning policies from Germany", Environmental and Planning C: Government and Policy 2009, volume 27, pages 684-697.

A primordial criterion to assess if a certain policy would be adequate for Brasília refers to whether the local culture is receptive to experimenting new policies and programs. In many countries, the culture is not conducive to the transference of lessons as such countries might have an ideology which prevent them from learning from others. It appears that Brazil, in general, would be receptive to new ideas, and Brasília, as a microcosm of Brazil is in a privileged position to try new ideas. In this respect, it is helpful that Brazil has been a long time recipient of international aid (though it is decreasing sharply). It is an active borrower of the World Bank and the Inter-American Development Bank and has had a long-time partnership with aid agencies from all G-8 countries including the USAID. Brazil is not, therefore, stranger to development experiences promoted by the international experience.

As indicated above, for the proposed study the potential beneficiary of lessons from selected European cities is the capital of Brazil, Brasília. The selected comparative cities are Berlin, Amsterdam and Paris.

These cities were chosen given their renowned experience with urban challenges, including transportation issues. All of them contemplate, on a daily basis, the difficulty of moving millions of people safely and efficiently. And all of them have spent considerable resources in trying to find alternative solutions to minimize the environmental and social impacts of meeting people's transportation needs. In addition, these are very old cities which have had centuries of experiences. The contrast of such experiences with a city such as Brasília which is only 50 years old but facing transportation issues will be particularly interesting.

The scope of the study will encompass a review of the urban transportation experiences of all such cities and whether these can be used in Brasília. The following specific criteria will apply to the each of the examined policies:

a) Process under which these policies were adopted (e.g., resulting from disasters or public outcry, public participation, parliamentary approval, court action, executive orders)

b) The form under which these policies became policies (e.g., best practices, policy, law, court orders).

c) Institutional responsibilities and functions.

d) Size and profile of transport users.

e) Environmental gains and costs.

f) Financial costs.

Finally, the study will examine the obstacles one could face when trying to introduce transportation policies from European cities into Brasília and how to overcome such obstacles. Could a policy-maker react and say that "in Brazil we do things different"? Could the proposed policy change be considered "anti-cultural"? Could it be too expensive? What, if any adaptation is needed? To address these and other related questions it will be imperative to broadly examine how the selected programs and policies function, their performance and relevance to the identified problems.[13]

Timeline

The study will be prepared between January 24th and May 7th in accordance with the following schedule:

1. Chapter 1 - Urbanization (Jan-24-Feb 7)
2. Chapter 2 - Transport (Feb 8-Feb 21)
3. Chapter 3 - Brasília (Feb 22-March 7)
4. Chapter 4 - Lessons from European Cities (March 8-March 21)
5. Chapter 5 - Cross-national Transfer of Lessons (March 22-April 4)
6. Chapter 6 - Discussion: Feasibility of Transferring the European Experience to Brasília (April 5-April 18)
7. Chapter 7 – Conclusions and Recommendations (April 19-May 2)

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[13] Dolowitz, D. and Medearis, D., "Considerations of the obstacles and opportunities to formalizing cross-national policy transfer to the United States: a case study of the transfer of urban environmental and planning policies from Germany", Environmental and Planning C: Government and Policy 2009, volume 27, pages 684-697.

8. Review Period - (May 2-May 6)

9. Delivery to Advisor and Chair (May 7)

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