

SUMMARY MESO STUDY: LAND TRANSPORT

This chapter focuses and transport over land in Brazil and the Netherlands. This subject entails sector such as passenger rail transport in urban areas and between urban areas, but also road transport. The framework of Porter's Analysis is used as an guideline for the discussion.

PORTER'S DIAMOND ANALYSIS FOR BRAZIL

The land transport section of Brazil is studied using Porter's diamond method. Every aspect of the diamond will briefly be discussed in this chapter.

Demand conditions

Supply

Brazil has over 1.6 million kilometres of road. However, only 5% of the road network is paved, which is a critically low rate. This makes demand the leading determinant of the Porter's diamond. The railway network consists in total of almost 30.000 kilometres, rather dispersed throughout the country. Nine Brazilian cities own a metro system. (Central Intelligence Agency, 2009). Transport infrastructure in Brazil is characterized by strong regional differences and a lack of development of the rail network. To compensate to the expected increasing demands, Brazil planned sizeable new investments to address some of the striking shortcomings in land transport, particularly in the rapidly ballooning urban areas.

Passenger land transport

With a car ownership of about 180 vehicles per 1000 population, it has a low car ownership rate, however in comparison with other developing economies of the BRIC group, Brazil scores high. In the past half-century Brazil experienced an explosion of car ownership. Brazil expects increasing demand on the transport networks in the near future. (Foreign Policy Digest, 2009)

Urban passenger land transport

Urban passenger land transport is an important topic since 85% of the Brazilians live in urban area. Brazilian commuters living in cities use public or non-motorized transport for 70% of their trips. Besides metro systems, complex bus systems are a widely used mode of transport. The government invests billions of Dollars in expanding urban public transport systems. In Sao Paulo this led to an increase of public transport usage of 25% over the last four years alone. (Brazil's Urban Transport conference 2010, 2010)

Passenger rail transport

Rail transport is a striking issue in Brazil's transport network. Most trains in Brazil these days are under serviced and lack investment. Furthermore, railways show huge regional differences and dispersion. This makes rail transport a less attractive mode of transport for intra urban travelling. The government realizes this and decided in 1999 to privatize the railway companies. (Business Monitor Online, 2010)

Factor conditions for Brazil and the Netherlands

Factor conditions describe the situation in a country regarding production factors, like skilled labor, infrastructure and others, which are relevant for competition in the land transport industry. First, a table (1) with some numerical factors is given.

Factor Condition	Brazil		Netherlands	
Foreign direct investment, net inflows (BoP, US\$)	\$45,058,156,304	2008	\$-2,389,298,043	2008
Lending interest rate (%)	47.3%	2008	4.6%	2008

Inflation, consumer prices (annual %)	5.7%	2008	2.5%	2008
Rate of exchange BRL to EUR*	1 real = 0.43 euro / 1 euro = 2.33 real*			2010*
Research and development expenditure (% of GDP)	1.0%	2006	1.8%	2007

Table 1: numerical factor conditions of Brazil and the Netherlands

Data in the table was for the greatest part obtained from The World Bank. (The World Bank, 2010) Data with a * was obtained from Yahoo Finance (Yahoo Finance, 2010).

- Foreign direct investment is a net inflow of 45 billion, which is four times smaller than China.
- The lending rate seems high, but are is lower than it used to be. The phenomenon of high interest rate margins has had a long history in Brazil. Nowadays, the Brazilian Real is coupled with the U.S. Dollar, which makes it more stable. (The World Bank, 2010)
- Inflation has lowered to a respectable amount, also due to coupling the Real with the U.S Dollar.
- Research development is about half as high as in developed countries. However, it is approximately on par with China (1.5%), Russian Federation (1.1%) and India (0.8%).

Capital availability

In the current global economy, in which company competition does not recognize national boundaries, the cost of capital plays an important role for the success of the Brazilian companies. The real interest rate in Brazil is currently above 12 per cent a year. The US and member countries of the European Union have historically had real interest rates much lower than the Brazilian ones, not exceeding 3 per cent or 4 per cent a year. (Cajazeira, 2005) Such high interest rates could indicate that Brazil's economy is growing too fast and are a huge discouraging factor for investors. Because many transport projects require private investors, this could be a major problem. (Horch, 2010)

The Netherlands are often ranked high (positively) when it comes to ease of doing business, corruption perception and economic freedom. (The Economic Department, 2008)

Labor market and costs

Brazil has a poorly operating labor market in terms of under remuneration and underutilization. (Barros, 2000) Brazil is also cheaper than almost all other South American or European countries, with a 30% salary advantage cost over the US. However it is not the cheapest option, with Indian locations benefiting for an additional 30% cost advantage. The average salary for an "entry level" IT worker is about \$9,000, while in China and India it's about \$5,500. (Silva, 2003)

Firm strategy structure and rivalry

Product characteristics

In Brazil there are many different ways of land transportation. In the major cities there are many possibilities to travel around, for example by car, truck, bus, city tram, taxis, underground train and bicycle. (FIFA, 2007) The main way of traveling over land between different cities is many done by bus and car, as only a few passenger rail lines are left in Brazil. (WikiTravel, 2010)

The transportation of freight in Brazil is mostly done by road. Of the total amount of freight transport in Brazil, around 60% of the freight is transported by road. Other ways of transporting freight are by train, water or air. (Internationaal Ondernemen, 2009)

Market structure

Most of roads of Brazil are free to use, but Brazil has some toll roads. Toll road in Brazil are a recent development and the toll is mostly applied to non-federal highways. The highest length of toll roads in Brazil can be found in the state of São Paulo. These toll roads are exploited as well by private companies thru

concessions as by state owned companies. Nowadays more and more major highways in Brazil are shifting from free to toll roads. (Wikipedia, 2010)

The taxi business is very diverse in Brazil. There are many taxi drivers in the major cities like Rio and São Paulo. Taxis are relatively inexpensive but taxi drivers get commissions from companies/hotels/bars etc. to tell visitors where to go or where to stay. In the major cities there are many standard taxis of different taxi companies (large and small), but they all look the same. But next to the official taxis, there are also illegal taxis. But all of the taxi drivers, as well the official as the illegal, tend to overprice their trips. (WikiTravel, 2010)

Competition

The competition between different taxi (companies) in Brazil is very high. Certainly in the larger cities, taxi drivers are eager to collect passengers. Also the fact that taxi drivers get commissions when they direct tourists to certain locations contributes to this competition. The official taxi drivers also experience competition of illegal taxi drivers. (WikiTravel, 2010)

Related and supporting industries

Exploitation organisations

Until 1999, the rail network was operated by the 'Rede Ferroviária Federal S.A.' (Federal Railway Network). In the present, however, the operating of the railway system is done by many private and public organisations. Within cities, metro lines are operated by different organisations, such as Alstom in Rio de Janeiro and São Paulo. (Alstom, 2010).

Engineering and construction organisations

New land infrastructure needs to be built. The engineering and construction industry provides these services. In Brazil, all steps of the building process are executed by a single organisation such as Odebrecht and Andrade Gutierrez (Odebrecht, 2010) (Andrade Gutierrez, n.d.). Other companies in the infrastructure construction business are Camargo Corrêa and Queiroz Galvão (Camargo Corrêa, n.d.) (Queiroz Galvão, 2006).

Management of the infrastructure

The National Agency for Land Transport is concerned with several supporting activities of the Brazilian land transport system, such as the operation of the railway and road infrastructure and the provision of public transport. (Agência Nacional de Transportes Terrestres)

Government

Involvement in rail

Due to problems with financing and labour agreements, the public railway operator 'Rede Ferroviária Federal S.A.' was privatised between 1999 and 2007. Since then, the involvement of the Brazilian government has been relatively low compared to the past. (Ministério dos Transportes, 2010)

The companies which took over the operations after the privatisation were mainly interested in cargo transport, which led to a poor service state of the passenger transport. The government had made all rail lines accessible for cargo transport in the years prior to the start of the privatisation. (Wikipedia, 2009)

Involvement in roads

Since the 90s, many federal states privatised operations of paved roads in order to earn extra income for the state. This resulted in higher tolls (toll was already present on many of the state-owned roads) and better quality roads.

The rules and laws of the road system are under control of the 'Conselho Nacional de Trânsito' (National Transit Council). The organization responsible for enforcing these rules is the 'Departamento Nacional de Trânsito'

(National Road Transport Department). These are both public organizations and are therefore under the responsibility of the national government. (Wikipedia, 2010)

Chance

With the upcoming World Cup in 2014 and Olympics in 2016, Brazil has a unique chance to upgrade its transport system, particularly in urban areas where huge demands are expected. The government is investing billions of Dollars already to make sure urban public transport services improve by 2014. However, these main events will unfortunately barely influence the quality of intra urban rail transport. (FIFA, 2007). Furthermore, recent privatization of the railway network gives Brazil the chance to enhance the quality of the railroad system. It turns out that the economic downturn does not affect Brazilian's investments in infrastructure. Recently, Brazil actually decided to increase investments. (Harrison, 2010)

Hot innovations

Brazil has some companies in the transport sector that work on innovations. For example, the "Lapa plant" in Sao Paulo, owned by Alstom, is its world excellence centre for the manufacturing of stainless steel metro cars. (Alstom Brazil, 2008). Also the Curitiba's bus system is an example of innovation in Brazil. The city of Curitiba has a locally developed state-of-the-art bus rapid transport system causing much interest worldwide. The public transport system, used by 85% of the city's population, consists entirely of bi-articulated busses that stop at designated elevated tubes, as showed in Figure 2. Several other cities worldwide used this rapid transport system as inspiration for their public transport network. (Wikipedia, 2010)

PORTER'S DIAMOND ANALYSIS FOR THE NETHERLANDS

To be able to compare Brazil with the Netherlands, the land transport section of the Netherlands is also studied using Porter's diamond method. A summary is discussed here.

Demand conditions

Supply

The Dutch road network consists of 125.000 kilometres of road, of which more than 90% is paved. The Netherlands has one of the most advanced and at the same time most dense highway networks in the world. The Dutch railway network consists of 2800 kilometres, operated by several different operators mainly focused on passenger rail services. Furthermore, the Netherlands has two relatively small urban metro systems. Remarkable is the high share of (utility) cycling in the Netherlands: 27% of all trips are made by bicycle, which is much more than in other European countries. By providing sustainable bicycle paths, the government tries to maintain a high bicycle share. (Ministry of Transport, Public Works and Water Management, 2009)

Passenger land transport

The Netherlands had in 2004 an average car ownership of about 450 per 1000 population. This indicates that private car is a very common way of transport in Western Europe, and thus the Netherlands, with consequently daily congestion. However, since 1991, only 100 kilometres of new highway was realized since the government tries to use other state-of-the-art solutions to reduce congestion. (Statistics Netherlands, 2004)

Urban passenger land transport

Travellers in urban regions are stimulated to travel by public transport or use non-motorized transport. Therefore, cities are working on expanding and increasing the frequency of public transport. (Ministry of Transport, Public Works and Water Management, 2009)

Passenger rail transport

The Dutch railways have a ridership of 438 million a year, which corresponds with a modals share of only 6%. Because of welfare people can afford a car and prefer to use it above public transport. (Wikipedia, 2010)

Freight transport by road

In 2006, 73% of freight in the EU was transported by road. This is an increase compared to the year 2000. In the same time period, the amount of freight transported by road increased with 25%. (Eurostat, 2008)

Firm strategy structure and rivalry

Product characteristics

In the Netherlands there are many ways of land transportation possible. These range from private motorized transport like cars, trucks, motorcycles etc. to public motorized transport like buses, trolleys, trains, street cars etc. Also the bicycle is a very common used way of passenger transportation in the Netherlands.

Market structure

Public transport in the Netherlands is provided by private companies for the twelve provinces and seven major cities, and regulated by the use of concessions. This means that a specific transport organization gains the right for a certain amount of time (at a maximum of 8 years) to exploit a certain bus line or other ways of transport. (Ministerie van Verkeer en Waterstaat, 2010)

In Holland there are no real toll roads. There have been idea's to start charging drivers by the totals amount of kilometers driven ("rekeningrijden"). There was a great resistance from the Dutch people because of the fact the government would be able to track every movement, because they felt it was a violation of their privacy right. But after the Dutch Parliament fell, these ideas have been put on hold. (Ministerie van Verkeer en

Waterstaat, 2010) In the Netherlands there are effectively toll roads. These are the Western Scheldt Tunnel, the Kil tunnel, both major arteries, and the "Tolbrug" in Nieuwerbrug. For the Wijkertunnel, Rijkswaterstaat pays the toll. As they have to pay the investment company for each passing vehicle.

The Dutch taxi market is under heavy regulations. Taxi drivers have to pass an exam to get their license. Taxi companies are free to set their own fees, as long as they don't exceed the maximum fee set by the Dutch government. Furthermore there are many other different requirements a taxi (company) has to fulfill. (Ministerie van Verkeer en Waterstaat, 2009)

Competition

In the market of public transport in the Netherlands there is not a big competition between different companies that transport people. There are also many examples where different competitors are working together to exploit different lines, instead of competing against each other. An example of this is the public transport of Twents which is provided by Connexxion and Syntus.

In the taxi business however, due to the great amount of taxi drivers and companies, the rivalry between different companies is quite high, certainly in the larger cities. In 2006 there were in total more than 5200 different taxi companies with 25.500 vehicles in the Netherlands. (Jullens, 2007)

In Holland the competition between freighters is also very high. There are many companies active in the transportation sector over the road. In the Netherlands alone there are around 12.000 companies active, hence the big rivalry. Also the freighters experience the everlasting battle with rail and water transport. Certainly with the evermore congested roads, it gets more attractive to choose for rail or water transport. In the recent economic crisis, many freighters have felt this competition, because of the declining demand many companies went bankrupt. (Berkleef, 2005)

Related and supporting industries

Exploitation organisations

Railway operations are mainly done by the Nederlandse Spoorwegen (Dutch Railways, NS). While the NS used to have exclusive operating rights on almost all Dutch lines, a tendering system now exists for regional railroads. The NS still has exclusive rights on the main rail network until 2015 (NS-1, n.d.). The NS is the biggest operator in passenger transport among other smaller operators (like Syntus) or foreign organisations which entered the Dutch market (like Veolia).

Many different private organisations have rights to transport cargo over the Dutch railway network. The largest operator is Raillon, which is part of Deutsche Bahn. (NS-2, n.d.)

Engineering and constructing organisations

In contrary to Brazil, engineering and constructing tasks are usually seen as separate processes and can therefore be executed by different organisations. The companies are mostly private organisations, such as BAM, Heijmans and Grontmij.

Management of the infrastructure

The rail infrastructure itself is maintained and managed by ProRail (NS-2, n.d.). and the maintenance of the roads is carried out by Rijkswaterstaat. (Ministerie van Verkeer en Waterstaat, n.d.)

Government

Involvement in rail

The rail sector has known some privatisation processes in the last few years. The railroad concession system was changed, resulting in more private companies exploiting passenger traffic. The concession for the main rail network will be open for tender for the first time in 2015 (NS-1, n.d.).

The biggest Dutch railway operator, the Dutch Railways, is however still not fully privatised. Past plans for full privatisation have never been performed completely.

Involvement in roads

The maintenance and construction of the roads is done by Rijkswaterstaat (the construction itself might be carried out by private organisations for Rijkswaterstaat). There are no private operated roads in the Netherlands (Ministerie van Verkeer en Waterstaat, n.d.).

Chance

With the new Intelligent Transport Systems becoming available on the market, the Dutch road network can be prepared to obtain higher capacities. This means more supply without building new roads. Another possible policy that the Netherlands considers to implement is kilometre pricing. The advantage of this system should be more dispersion of traffic in time, which means less congestion during peak hours.

Hot innovations

Congestion pricing is a very controversial topic in the Netherlands. It's a system of surcharging users of a transport network in periods of peak demand to reduce traffic congestion. This kind of measure has been implemented before in major cities like London, Stockholm, Singapore and Milan but has never been attempted at a national scale. However, with the fall of Balkenende IV, congestion pricing has been postponed until new policies determine which way it should go.

Another transport innovation in the Netherlands is the HSL. This fast train service connects Amsterdam with Brussels and Paris. It's the first high speed rail for the Netherlands and not entirely functional yet.

COMPARISONS BETWEEN COUNTRIES

In table 2, some comparisons are made between Brazil and the Netherlands on different aspects of land transport.

	Brazil	Netherlands
Railway operators	Many private organisations	One main organisation (NS) plus some smaller private organisations
Interurban rail transport	Rare and poor quality	Present throughout whole country and high quality
Railway operations	Private	Private
Road management	Public or private	Public
Road network size	>1.6 million km	125.000 km
Rail network size	30.000 km	2800 km
Paved roads	5%	>90%
Number of metro systems	9	2
Use of toll roads	common	scarce
Freight transport by road	60%	73% (EU wide)
Foreign direct investment, net inflows (BoP, US\$)	\$45,058,156,304	\$-2,389,298,043
Inflation, consumer prices (annual %)	5.7%	2.5%
Rate of exchange BRL to EUR*	1 real = 0.43 euro / 1 euro = 2.33 real*	
Research and development expenditure (% of GDP)	1.0%	1.8%
Lending interest rate (%)	47.3%	4.6%

Table 2: Comparative table between Brazil and the Netherlands

CONCLUSIONS

Land transport in Brazil is of major importance in large and rapidly growing metropolitan areas, where many efforts are made to make transport in any way possible. With the upcoming World Cup in 2014 and Olympics in 2016, Brazil has a unique chance to upgrade its transport system, particularly in urban areas where huge demands are expected. The government is investing billions of Dollars already in order to guarantee urban public transport services will improve by 2014.

However, these main events will unfortunately barely influence the quality of intra urban transport. This is rather dreadful, because when it comes to both interregional passenger and freight transport, land transport is barely used at all. Only 5% of the roads are paved, resulting in huge travel times between major cities. Because of those high travel times, air transport is the most common way to travel these large distances.

The main difference between Brazil and the Netherlands is the type of issues that both countries are dealing with. Brazil is developing, while the Netherlands is developed. This has consequences for the way land transport is used. Congestion and air quality are for example problems that both countries have to deal with. Whereas the Netherlands mainly deals with congestion and air quality issues, Brazil mainly has to focus on problems like poor accessibility, quality, sustainability and reliability of its transport systems. Of course, Brazil also deals with congestion and a negative environmental impact, but is has to pay its primary attention to the more severe issues.

To ensure a sustainable future in land transport, Brazil has to focus primarily on solving today's problems from a sustainable perspective. Brazil's geographic and societal properties allow the implementation of state-of-the-art transport solutions in the near future. With the upcoming major sports events, Brazil gets triggered to make huge investments in sustainable transport, which gives Brazil the opportunity to catch up and even surpass developed countries.

BIBLIOGRAPHY

- Agência Nacional de Transportes Terrestres. (n.d.). *Agência*. Retrieved April 26, 2010, from Agência Nacional de Transportes Terrestres website: <http://www.antt.gov.br/institucional/institucional.asp>
- Alstom. (2010). *Alstom in Brazil*. Retrieved April 27, 2010, from Alstom website: http://www.br.alstom.com/home/alstom_in_brazil/index.EN.php?languageId=EN&dir=/home/alstom_in_brazil/
- Alstom Brazil. (2008, July 23). *Technology & Innovation*. Retrieved April 28, 2010, from Alstom Brazil: http://www.br.alstom.com/home/alstom_in_brazil/tecnologia_inovacao/51088.EN.php?languageId=EN&dir=/home/alstom_in_brazil/tecnologia_inovacao/
- Amazon Rainforest. (2004). *Amazon Rainforest Travel*. Retrieved April 28, 2010, from <http://www.amazon-rainforest.org/travel.html>
- Andrade Gutierrez. (n.d.). *Engineering*. Retrieved April 26, 2010, from Andrade Gutierrez website: http://www.agsa.com.br/eng/construcao.aspx?sub=construcao_construcao&tipo=construcao_zagope&irpara=andrade
- Barros, R. P. (2000). *Labor market and poverty in Brazil*. Retrieved April 27, 2010, from http://www.ipea.gov.br/pub/td/2000/td_0723.pdf
- Berkleef, T. (2005). *Wegtransport in Nederland*. ABN AMRO.
- Brazil's Urban Transport conference 2010. (2010). <http://www.terrapinn.com/2010/UTWB/conf.stm>.
- Business Monitor Online. (2010, March 23). <http://www.allbusiness.com/transportation/freight-package-postal-shipping/14168766-1.html>. Retrieved from All Business.
- Cajazeira, F. (2005, July 18). *Brazil's need to implement IFRS*. Retrieved April 27, 2010, from GTNews: <http://www.gtnews.com/article/6041.cfm>
- Camargo Corrêa. (n.d.). *Main businesses*. Retrieved April 26, 2010, from Camargo Corrêa website: <http://www.camargocorrea.com.br/>
- Central Intelligence Agency. (2009). <https://www.cia.gov/library/publications/the-world-factbook/geos/br.html>.
- Encyclopedia of Earth. (2004). *Energy profile of Brazil*. Retrieved May 20, 2010, from Encyclopedia of Earth: http://www.eoearth.org/article/Energy_profile_of_Brazil
- Encyclopedia of the Nations. (2010). *Netherlands - Climate*. Retrieved April 29, 2010, from Encyclopedia of the Nations: <http://www.nationsencyclopedia.com/Europe/Netherlands-CLIMATE.html>
- Eurostat. (2008). *Modal split in the inland transport for the EU*.
- FIFA. (2007). *Brazil Bid - Inspection Report for the 2014 FIFA World Cup*.
- FIFA. (2007). *Brazil bid inspection report for the 2014 FIFA World Cup*.
- Foreign Policy Digest. (2009, February). <http://www.foreignpolicydigest.org/Americas/February-2009/bric-brazil-global-warming.html>.
- Harrison, S. (2010, January). *Financier worldwide*. Retrieved from <http://www.financierworldwide.com/article.php?id=5678>.
- Horch, D. (2010, May 13). *Brazil Fin Minister: Govt will Cut Spending to Slow Economy*. Retrieved May 20, 2010, from iMarketNews: <http://imarketnews.com/node/13415>
- Index Mundi. (2008). *Brazil Oil - production - Economy*. Retrieved May 20, 2010, from Index Mundi: http://www.indexmundi.com/brazil/oil_production.html

- Internationaal Ondernemen. (2009, February 2). *Brazilië: distributiestructuur*. Retrieved April 27, 2010, from Internationaal Ondernemen: http://www.internationaalondernemen.nl/zoeken/showbouwsteen_dtb.asp?bstnum=87343
- Jullens, H.-P. (2007). *De invloed van de nieuwe taxiwet op de concurrentie op de Nederlandse taximarkt*. Universiteit Tilburg.
- Ministerie van Verkeer en Waterstaat. (2009, July 9). *Nieuwe regels voor de taxi*. Retrieved April 27, 2010, from Ministerie van Verkeer en Waterstaat: <http://www.verkeerenwaterstaat.nl/onderwerpen/vervoermiddelen/taxi/>
- Ministerie van Verkeer en Waterstaat. (2010, March 23). *Anders betalen voor mobiliteit*. Retrieved April 26, 2010, from Ministerie van Verkeer en Waterstaat: http://www.verkeerenwaterstaat.nl/onderwerpen/mobiliteit_en_bereikbaarheid/kilometerprijs/
- Ministerie van Verkeer en Waterstaat. (2010, April 27). *Stads- en streekvervoer*. Retrieved April 27, 2010, from Ministerie van Verkeer en Waterstaat: http://www.verkeerenwaterstaat.nl/onderwerpen/openbaar_vervoer/stads-en_streekvervoer/vraag_en_antwoord/
- Ministerie van Verkeer en Waterstaat. (n.d.). *Rijkswaterstaat - Missie en kerntaken*. Retrieved April 27, 2010, from Ministerie van Verkeer en Waterstaat website: http://www.rijkswaterstaat.nl/over_ons/missiekerntaken/
- Ministério dos Transportes. (2010, April 15). *Inventarianca da extinta Rede Ferroviária Federal S.A*. Retrieved April 26, 2010, from Ministério dos Transportes website: <http://www.rffsa.gov.br/principal/empresa.htm>
- Ministry of Transport, Public Works and Water Management. (2009). *Cycling in the Netherlands*.
- NS-1. (n.d.). *Spoorwegwet en concessiewet*. Retrieved April 27, 2010, from NS website: <http://www.ns.nl/cs/Satellite/ns2007/nl/artikel/include/1175591754187/spoorwegwet+en+concessiewet?p=1175176894983>
- NS-2. (n.d.). *Verantwoordelijkheden op het spoor*. Retrieved April 27, 2010, from NS website: <http://www.ns.nl/cs/Satellite/ns2007/nl/menuitem/include/1175176894881/verantwoordelijkheden+op+het+spoor?p=1252507140043>
- Odebrecht. (2010). *Engineering and Construction*. Retrieved April 26, 2010, from Odebrecht website: <http://www.odebrecht.com/en/businesses-and-interests/engineering-and-construction>
- Photius. (1997). *Brazil Education*. Retrieved 2010, from Photius: http://www.photius.com/countries/brazil/society/brazil_society_education.html
- Queiroz Galvão. (2006). *Business Areas*. Retrieved April 26, 2010, from Queiroz Galvão website: <http://www.queirozgalvao.com/en/default.aspx?tabid=38>
- Rebelo, J. M. (1996, August 31). *Essentials for sustainable urban transport in Brazil's large metropolitan areas*. Retrieved April 26, 2010, from IDEAS: <http://ideas.repec.org/p/wbk/wbrwps/1633.html>
- Reuters. (2007, March 28). *Brazil copper output seen doubling by 2010*. Retrieved May 20, 2010, from Reuters: <http://www.reuters.com/article/idUSN2843501420070328>
- Rijkswaterstaat. (2009, January). *Nieuwbrief nummer 1*. Netherlands.
- Silva, M. (2003). *Brazil as an outsourcing destination*. Retrieved April 27, 2010, from Sourcingmag.com: <http://www.sourcingmag.com/content/co60201a.asp>
- Statistics Netherlands. (2004). <http://www.ruimtemonitor.nl/kennisportaal/default.aspx?menucomid=9&pid=34&id=2834&themeld=-1>
- The Economic Department. (2008). *Fact sheet Netherlands 2008*. Retrieved May 20, 2010, from Government of Israel: <http://www.export.gov.il/NewsHTML/FactSheets/netherlands.pdf>

The World Bank. (2010, April 27). *Brazil*. Retrieved April 27, 2010, from Brazil | Data | The World Bank: <http://data.worldbank.org/country/brazil>

The World Bank. (2010). *Brazil: Interest Rates and Intermediation Spreads*. Retrieved May 5, 2010, from Latin America and Caribbean: <http://go.worldbank.org/TSYMHHoXXo>

The World Bank. (2010, April 27). *The Netherlands*. Retrieved April 27, 2010, from Netherlands, The | Data | The World Bank: <http://data.worldbank.org/country/netherlands>

United Nations. (2008, August 11). *ISIC Rev. 4*. Retrieved April 28, 2010, from United Nations Statistics Division - Classifications Registry: <http://unstats.un.org/unsd/cr/registry/isic-4.asp>

Wikipedia. (2009, September 26). <http://en.wikipedia.org/wiki/RFFSA>.

Wikipedia. (2009, September 26). *RFFSA*. Retrieved April 26, 2010, from Wikipedia: <http://en.wikipedia.org/wiki/RFFSA>

Wikipedia. (2010, April 15). *Brazilian Highway System*. Retrieved April 26, 2010, from Wikipedia: http://en.wikipedia.org/wiki/Brazilian_Highway_System

Wikipedia. (2010, January 15). *Highway system of São Paulo*. Retrieved April 27, 2010, from Wikipedia: http://en.wikipedia.org/wiki/Highway_system_of_S%C3%A3o_Paulo

Wikipedia. (2010, April 21). http://en.wikipedia.org/wiki/Rail_transport_in_the_Netherlands.

Wikipedia. (2010, February 20). http://en.wikipedia.org/wiki/Rede_Integrada_de_Transporte.

WikiTravel. (2010, April 20). *Brazil*. Retrieved April 28, 2010, from WikiTravel: <http://wikitravel.org/en/Brazil>

World Travel Guide. (2010). *Brazil Transport*. Retrieved April 27, 2010, from World Travel Guide website: http://www.worldtravelguide.net/country/39/internal_travel/South-America/Brazil.html

Yahoo Finance. (2010, April 27). *Currency converter*. Retrieved April 27, 2010, from Yahoo Finance: <http://finance.yahoo.com/currency-converter/>