

COLOMBIA'S MINING RENAISSANCE: A BRIEF DISCUSSION ON GOVERNANCE, DEVELOPMENT AND POLICY MAKING

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Resumen

Este trabajo de investigación busca formular una política comprehensiva de inversión extranjera para América Latina y Colombia en la producción de "commodities" como petróleo, gas, oro, plata, metales industriales y otros menos conocidos pero valiosos, esto es minerales "exóticos" como el coltan (es una mezcla de los minerales columbita y tantalita) cuyos elementos son considerados "críticos" para industrias altamente tecnológicas por ejemplo defensa, aeroespacial y telecomunicaciones, debido a sus particulares propiedades físicas y químicas. Este trabajo estudia los patrones de flujos de IED hacia Colombia en años recientes y los resultados de las medidas de promoción de inversión adoptadas por el Gobierno colombiano especialmente en el sector minero. Se identifica una importante tendencia de convergencia entre los gobiernos de Corea del Sur y Colombia en estas áreas, que puede ser explotada para ventaja mutua, en un marco de libre comercio. Sin embargo, la política de convergencia requiere ser probada de manera empírica en la implementación de política.

Abstract

This research paper aims to formulate a comprehensive foreign investment policy towards Latin America and Colombia

in commodities production like oil, gas, gold, silver, industrial metals, and other less known but valuable minerals, such as 'exotic' minerals like coltan (columbium or niobium and tantalum) whose elements are considered 'critical' for hi-tech industries i.e. defence, aerospace and communications due to their particular physical and chemical properties. Particularly, the paper studies the pattern of FDI inflows to Colombia in recent years and the results of the investment promotion measures taken by the Colombian government especially in the mining sector. An important policy convergence is found between Colombia and South Korea in those areas, that can be exploited to mutual advantage in a Free Trade Agreement framework being concluded between the two countries. However, the policy convergence still needs to be tested into policy action.

Palabras clave

Minería, IED, materias primas, exportaciones.

Keywords

Mining, FDI, raw materials, exports.

JEL: Q32, Q33, Q34.

* Master International Commerce, Korea University, Bachelor of Arts in Political Science, National University of Colombia. This paper was submitted for graduation requirements at Korea University in 2011 and it has been updated and adapted for publication at CIVILIZAR Empresa & Economía.

Este documento es un producto derivado del trabajo de grado Msc. en la Universidad de Corea. Fecha de recepción 2 de febrero de 2012, fecha de aprobación, 8 de mayo de 2012.

Introducción

Trade in commodities is not a recent phenomenon, from the silk trade in ancient times to the spice trade -pepper, clove, cinnamon, nutmeg and others- in the 16th Century to modern day global supply chain of indispensable yet finite and exhaustible natural resources. Trading in minerals is one of the most important activities our in contemporary world. However, out of the total trade in natural resources fuels take more than three-fourths (3/4) of total trade according to the WTO *World Trade Report 2010 Trade in Natural Resources*.

Latin America is a resource rich region (World Bank, 2010)¹. Before the arrival of the Spanish and Portuguese 'Conquistadors' to the Americas, the Indigenous population had skilled goldsmiths that produced numerous and invaluable masterpieces. Pre-Columbian history is rich in culture, arts and crafts. When the Conquistadors arrived to the Americas and found gold and silver in such abundance that fueled legends like El Dorado, the lost city made of pure gold (Galeano, 1979, p. 22). Latin America was mined for gold and silver in different locations, Zacatecas in Mexico, Potosi in Bolivia and Ouro Preto in Brazil just to name a few.

Nowadays, Latin America still has a lot of potential in commodities production like oil, gas, gold, silver, industrial metals, and other less known but valuable minerals. **Colombia** is currently undergoing a '*mining renaissance*' due to a set of factors that have restored investors' confidence in the country. The business-friendly and security-oriented administration of Alvaro Uribe Velez (2002-2010) implemented a series of policies that turned the country from a 'near-failed-state' to a strengthened Nation-State that provides security to its population and key infrastructure, developed policies to attract foreign investment and introduced reforms that improved the business climate.

As mentioned above, fuels take a substantial share in the world trade in natural

resources and that specific segment (oil, gas and other fuels) has been widely documented and studied. This document will focus on less known minerals but deemed critical by the United States (National Research Council, 2008) and the European Union (European Commission, 2010a.)

Current technological developments have created demand for 'exotic' minerals; minerals like **coltan**, a portmanteau for columbium (niobium) and tantalum, disregarded and unregulated by local governments, these minerals are now indispensable for the hi-tech industry due to the particular physical and chemical properties of these elements and their novel applications for science and technology.

Coltan elements are now deemed 'critical' for cutting edge industries like defense, aerospace and communications but also a wide range of mass market **consumer electronics** like mobile phones, computers, game consoles and others.

The modest objective of this research project is to be an **exploratory primer** for the formulation of a comprehensive policy and investment formulation towards Latin America, especially in a sector in which South Korea is highly import-dependant. Gains for Korea, after a Free Trade Agreement with Colombia is concluded, may include securing and diversifying the supply of the aforementioned 'critical' minerals and for Colombia to attract significant amounts of foreign direct investment and the development of these resources.

The methods used for data collection and analysis in this research project are *Secondary Analysis and Comparative Research*. These two approaches are not mutually exclusive but instead they reinforce each other, provide a robust data gathering and analytical framework. The **secondary analysis** of information and statistics from supranational institutions and government agencies as anchor data, this given the ability of these institutions to conduct large cross-national research and most likely, to compile data sets using the

¹80% of the silver produced worldwide from the 16th to the 19th Century came from Latin American mining operations. (World Bank, 2010)

same methodologies, measurements and indicators thus providing consistency in the data and a reliable benchmark for the **comparative process**. Primary sources considered for this project include, current regulatory frameworks and prospective regulatory changes², policy papers, government reports and other relevant documents.

Due to the on-going process of consolidation in the mining sector and the recent developments in Colombia, a constant monitoring international and specialized media using information technologies (social media, customized searches, newsletter subscription and email alerts) have been used "as a way to identify and count key events" (Neuman, 2006), that may help to **recognize trends** and to provide timelines, milestones, future projects and other information relevant to the research question. Furthermore, **secondary data techniques** "[...] permit[s] comparison across groups, nations or time; it facilitates replication; and it permits asking about issues not thought by the original researchers." (Neuman)

The comparative approach has some advantages, "A comparative perspective exposes weaknesses in research design and helps you improve the quality of research. The focus of comparative research is on similarities and differences between units." (Neuman, 2006) This research project has as main unit of analysis (but not the only one) the Nation-State, and the use of statistical information from supranational institutions to avoid problems of equivalence and achieve comparison in absolute (facts and figures) and relative (percentages and ratios) terms.

2. Global Mining Industry: A Contextual Overview

Trade in natural resources has become one of the largest industries in the

world, the global mining sector has undergone corporate consolidation through mergers, acquisitions and takeovers (sometimes hostile bidding processes) creating the massive diversified minerals corporations we know today.³ The industry environment is ultra competitive, poses high entry barriers to new players and it is regulated tightly. For instance, trade in natural resources is usually curtailed by a set of policies that range from export taxes, quantitative restrictions (quotas), export bans, export licenses, mining permits and restrictions of foreign investment. (World Trade Organization, 2010, 112 and *passim*)

Natural resources, especially mining products are **indispensable** for modern industry applications hence **critical in the global supply chain**, but they are also **finite, unevenly distributed geographically**, prone to **price volatility**, the development of these resources often leads to externalities like **environmental damage**, and might be the source of **political tension**⁴ domestically and abroad.

Global mineral use is directly proportional to economic output. According to some estimates the global economy has grown from 7.1 trillion dollars in 1950 to 69.98 trillion dollars in 2009 (in Power Purchase Parity) (CIA, 2010)

The demand for minerals (and for energy) grows with the global economy and growth in the 20th century and since was fueled by unprecedented growth in raw materials use on a global scale, with the United States and Europe being the dominant users of raw materials. (National Research Council, 2008, p. 43-44)

The previous statement is **no longer true**; there has been a **radical shift** in the supply and demand dynamics of natural resources. Today Asian demand for commodities is driving the economic recovery in Latin

² The Administration of President Juan Manuel Santos has passed a Constitutional Amendment that reformed mining sector regulatory framework, specifically regarding royalties in Colombia. More on this issue will be discussed in Chapter 3.

³ Just as a reference, BHP Billiton plc and Rio Tinto plc set an example of large global diversified materials corporations. Recently, BHP Billiton and Sinochem were contending for control of Potash Corp. a Canadian fertilizer manufacturer; implying further consolidation in the mining and resources industry.

⁴ An example case of international political tension is the export restrictions imposed by China on Rare Earth Elements. China is today virtually the sole producer of these critical minerals for industry and defense applications.

America.(ECLAC, 2010) Reports released in 2010, described that China had become the largest consumer of oil (Swartz and Oster, 2010) and steel⁵; and back in 2008, *The Economist* newspaper had already discussed the trends shown in Chinese commodities consumption;

The country accounts for about a fifth of the world's population, yet it gobbles up more than half of the world's pork, half of its cement, a third of its steel and over a quarter of its aluminium. It is spending 35 times as much on imports of soya beans and crude oil as it did in 1999, and 23 times as much importing copper—indeed, China has swallowed over four-fifths of the increase in the world's copper supply since 2000 (The Economist, 2008).

These trends are most likely to be sustained for the next couple of decades.

India also is playing a key role in the natural resources arena. Its vast population and economic performance in the last decade has positioned this country among the emerging political and economics powers competing for exhaustible resources thus pushing up commodities prices. India does not have the manufacturing capacity of China; most of its notable exports are gemstones and information technology services, the latter due to the technical prowess and skills of its abundant and competitive labor (English-speaking), yet the manufacturing sector is growing to cater the massive Indian market (Winters, 2007, p. 17).

South Korea, the country featured in this research project, is in search of strategic minerals supply for its manufacturing and electronics industry. The two minerals discussed in this research, niobium and tantalum are critical for the steel and electronics industry respectively, economic sectors in which South Korean companies have significant market share.

The global mining sector is undergoing important challenges to its structure, economic output is directly linked to natural resources consumption, and all economies all over the world are adding pressure to the current mineral production by an increasing demand from both developed and developing countries. The current sources of minerals are being depleted at a fast pace and potential new deposits are located in either difficult to mine or politically unstable locations. Also, the consolidation in the industry is leaving fewer players with significant market share which means less competition and the possibility of an escalation in prices.

Recently there has been an increased media attention to the so called **Rare Earth Elements** (REE) due to the decision of China to impose an export quota of less than 35,000 metric tons a year (The Economist, 2010) for the next six years according to reports by international media. The elements are not as rare or scarce as the name suggest, but they are vital for a variety of industry and defense applications, moreover; China holds a strong monopoly position in its current production and export of these 'earths' refined materials estimated at 95% of the market share (ResearchInChina, 2009).

Emerging technologies and applications will increase the demand of minerals in the mid and long term, the development of these resources is a process that takes time (including the geological survey, prospecting, exploration, exploitation, refining and transport) considerable amounts of capital, planning and logistics (mining infrastructure, railways, pipelines, ports, etc.) not to mention bottlenecks and bureaucratic "red tape".

A selected group of technologies listed in the following table will have a substantial impact in the quest for the minerals that are critical in the manufacturing of these technologies and applications. Readiness and proper investment assessments are needed in order to prevent supply disruptions and mitigate related risks.

⁵ According to Rachel Tang, an Analyst for the U.S. Congressional Research Service, "In 2009, China produced over 567 million tons of crude steel, nearly half of the world's steel. That was 10 times the U.S. production." (September 21, 2010).

TABLE I

Global Demand of Raw Materials for Emerging Technologies in 2030

Raw Material	Required In 2030 ⁶	Emerging Technologies
Gallium	6.09	Thin layer photovoltaics, IC, WLED
Neodymium	3.82	Permanent magnets, laser technology
Indium	3.29	Displays, thin layer photovoltaics
Germanium	2.44	Fiber optic cable, IR optical technologies
Scandium	2.28	SOFC, aluminum alloy element
Platinum	1.56	Fuel cells, catalysts
Tantalum*	1.01	Micro capacitors, medical technology
Silver	0.78	RFID, lead-free soft solder
Tin	0.77	Lead free soft solder; transparent electrodes
Cobalt	0.40	Lithium-ion batteries, synthetic fuels
Palladium	0.34	Catalysts, seawater desalination
Titanium	0.29	Seawater desalination, implants
Copper**	0.24	Efficient electric motors, RFID
Selenium	0.11	Thin layer photovoltaics, alloying element
Niobium*	0.03	Microcapacitors, ferroalloys
Ruthenium	0.03	Dy-sensitized solar cells, Ti-alloying element
Yttrium	0.01	Super conduction, laser technology
Antimony	Low	ATO, micro capacitors
Chromium	Low	Seawater desalination, marine technologies

Latin America is playing a prominent role in this scenario of increased demand for minerals, the polymetallic Andes Mountain Range, the Brazilian geological diversity and the Central American and Mexican deposits, the untapped mineral resources in Bolivia (especially lithium for the next generation battery technology) are drawing the attention of international investors.

The next graph shows the evolution of the export structure of the region according to the type of product exported. In the early 1980s, raw materials took more than 50% of the exports by value of the region,

this percentage dropped to a regional average of 26.7% in 1999⁷.

In the last decade the trend has reversed, there has been a steady increase in raw materials exports value partly due to the overall high commodity prices experienced during the last decade, from an average of 27.6% in 2001-2002 up 11.2 percentage points to the new average of 38.8% in 2009. This trend may continue during the next decade if current projects increase output and new projects 'in the pipeline' become operational.

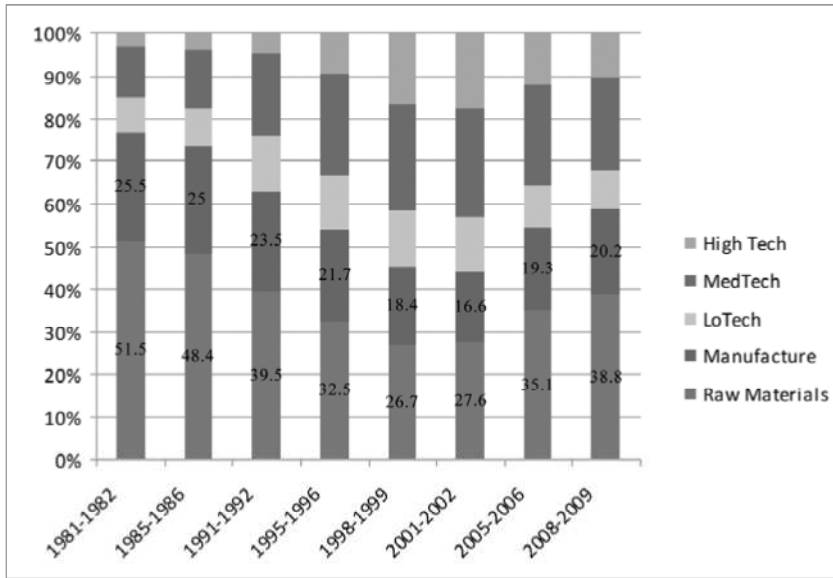
⁵ This number represents the number of times current production needs to increase in order to meet projected demand in 2030.

* Tantalum and niobium are one of the main themes in this paper. ** Considered critical by KORES (Korea Resources Corporation)

⁷ For a detail country by country growth rate refer to Annex I.

FIGURE I

Latin America and the Caribbean: Export Structure 1980s – 2009
(Percentage of total value)



Source: ECLAC, (2010). p. 22

Latin America will play a critical role in mineral production as geological studies are conducted in different countries; an exhaustive geological wealth 'inventory' of the region will prove beneficial both for governments and investors. Natural Resources poor countries like South Korea may contribute to the creation of this 'public knowledge' providing technical expertise or funding.

3. Colombia Mining Renaissance

Colombia is a resource-rich nation; it has a significant land area, abundant biodiversity, a favored location with access to the Caribbean Sea and the Pacific Ocean among other natural assets. The purpose of this chapter is, *first* to describe briefly the policies

that have accompanied this mining renaissance in the last decade, *second* to describe concisely the current regulatory framework and the changes accomplished under the Administration of President Juan Manuel Santos, *third* discuss the potential that Colombia exhibits in unconventional mineral resources.

Colombia during the 1990s embarked in a substantial institutional overhaul, a new constitution was promulgated in 1991 after a peace process with a largely-urban guerrilla (M-19) and the opening of the Colombian economy to world trade and investment, just to name some of the main features. Colombia had successfully dodged economic calamities like hyper-inflation, balance of payments deficits or the external debt that plagued the region in the 1980s, not to men-

⁶ Para 1987 miembros del Banco Mundial, así como del Congreso de Estados Unidos veían con preocupación la posibilidad de un "default" por parte de Brasil, el cual podría tener consecuencias nefastas para la deprimida economía de América Latina tras la cascada de cesaciones de pago de la deuda iniciada por México en 1982.

tion the populist regimes that crowded the political arena. However, the poor security perception of Colombia due to a long lasting insurgency, paramilitary groups and the drug trade curbed investment flows to the country hurting the economy.

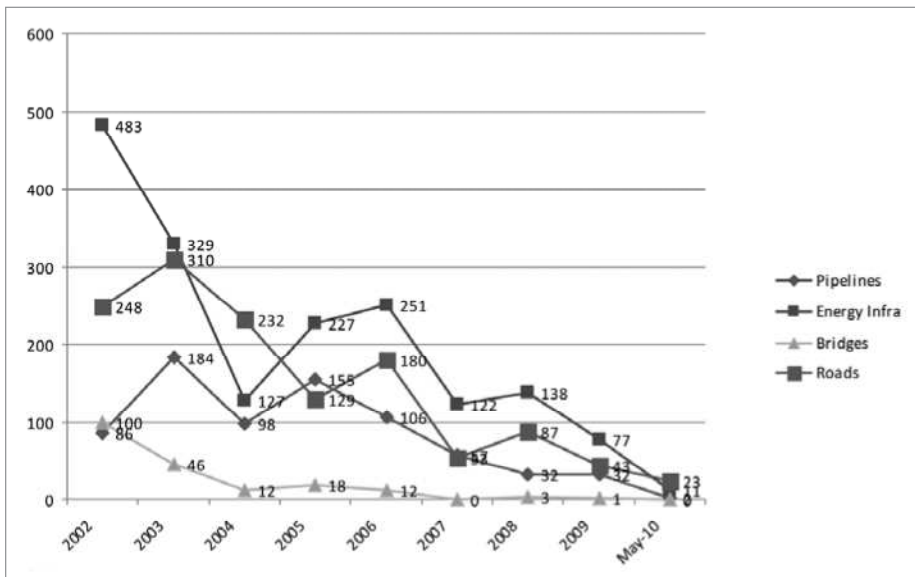
Colombia is currently undergoing a 'mining renaissance' mainly to three factors considered in this work (security, business-friendliness, incentives for investors) that have restored the confidence in the country. The **business-friendly and security-oriented** administration of Alvaro Uribe Velez (2002-2010) deployed the *democratic security policy*⁸ to strengthen the position of the Government and regain control of most of the ter-

ritory formerly lost to insurgents, paramilitary or drug traffickers. The Uribe Administration also designed policies to attract foreign investment, especially in the oil and mining sector, and introduced reforms that created a favorable business climate for foreign companies.

The improvements in security under the Uribe Administration as shown in the following charts, the reduction of sabotage and attacks to key infrastructure and the reduced number of kidnappings help as evidence of a stronger government action, moreover the demobilization of around 30,000 paramilitaries and the military gains against the FARC guerrillas⁹ helped the perception of an improved security environment.

FIGURE 2

Attacks or Sabotage to Infrastructure (Percentage of total value)



Source: Presidencia de la República de Colombia. *Acción Social Balance de Gobierno 2002-2010: Trabajo, Hechos y Corazón*, (2010).

⁸ A brief description of the policy goals and results can be found at: http://www.presidencia.gov.co/sne/visita_bush/documentos/security.pdf (Accessed October 10 2010)

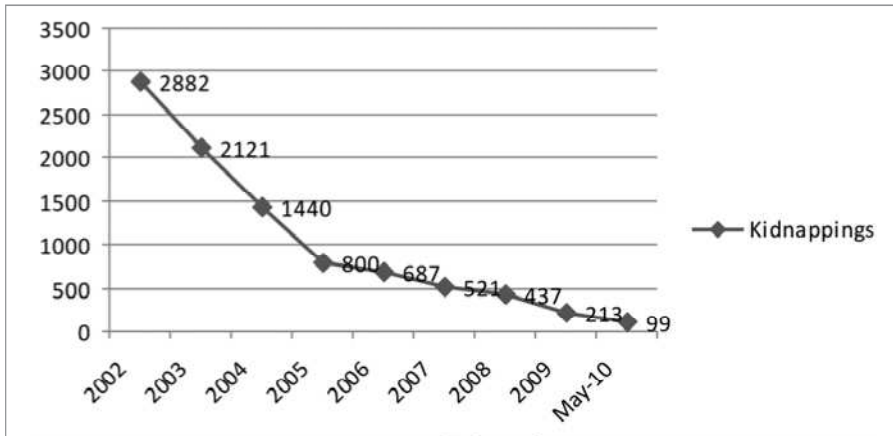
⁹ Strategic Military gains like the "Operación Jaque" that ended with the rescue of kidnapped people including former presidential candidate Ingrid Betancourt and three American citizens. Also the military actions that took away high profile guerrilla commander 'Raul Reyes' and the operation against 'Mono Jojoy' a guerrilla high commander.

The number of kidnappings has been reduced drastically, as shown in the following graph. Most gains in this factor can be explained by the territorial control regained

by the Government and the increase in personnel to cover and protect the newly controlled areas.

FIGURE 3

Kinnappings



Source: Presidencia de la República de Colombia. *Acción Social Balance de Gobierno 2002-2010: Trabajo, Hechos y Corazón*, (2010).

The country has experienced noticeable improvements in security during the last few years, however it is not 'mission accomplished' yet. Multiple issues are still in the security agenda of the incumbent Santos Administration, one of them, is to consolidate the gains from the previous one.

Alongside the security aspects, the business climate of the country has also improved according to the World Bank report *Doing Business 2010*. Colombia is one of the top 10 reformers, the only from Latin America in this grouping. In the *Ease of Doing Business* ranking among the 183 countries, Colombia jumped from 49 in 2009 (World Bank, 2009, p. 4) to 42 in 2012 (World Bank, 2012). The reforms cover from starting a business to dealing with construction per-

mits, paying taxes and protecting investors. In general, Colombia reformed in **eight out of the ten criteria** surveyed by the World Bank report.¹⁰

Another report by Forbes Magazine named *Best Countries for Business*, Colombia ranks 51 out of 129 (Forbes, 2010). In the Latin American context, Colombia ranks third after Chile and Peru. Recently, Moody's Investor Services increased the credit rating outlook of Colombia from stable to positive (Bloomberg, 2010) increasing the country's attractiveness to foreign investment.¹¹

Colombia has also consolidated a strong reputation with foreign investors as a country relatively safe from political risks (nationalizations and contract repudiations)

¹⁰ The criteria and top reformers are listed in Annex 2.

¹¹ Colombia has a very attractive framework of investment in most economic sectors. For detailed information check Annex 3.

and regulatory risks (tax increases and other cumbersome regulation) providing Legal Stability Contracts to investors (Secretaria Senado de la República, 2010).¹²

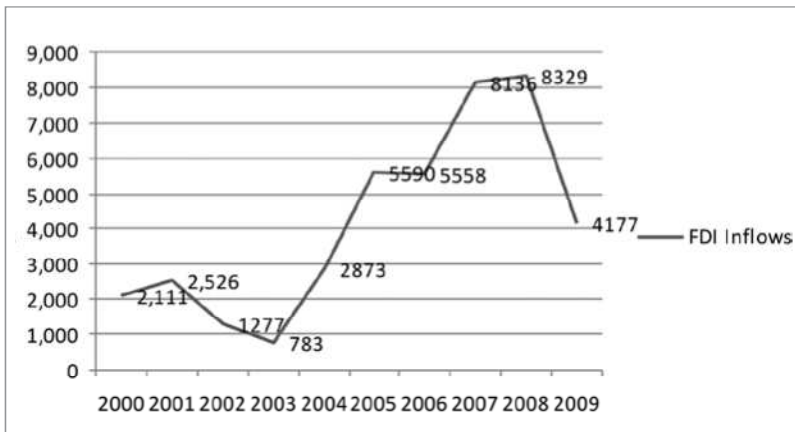
If the invested amount reaches a threshold of 7,500 Monthly Minimum Wages or 2.36 million dollars¹³ investors can enter into Legal Stability Contracts with the Colombian Government. The contracts are usu-

ally signed for periods of 3 to 20 years and the investor should pay a stability premium of 1% of the total investment to the Colombian Government (Invest in Colombia, 2010).

The aforementioned mix of policies provided a favorable investment climate for overseas investors, as shown in the graph a substantial inflow FDI entered Colombia starting in years 2003 and 2004.

FIGURE 4

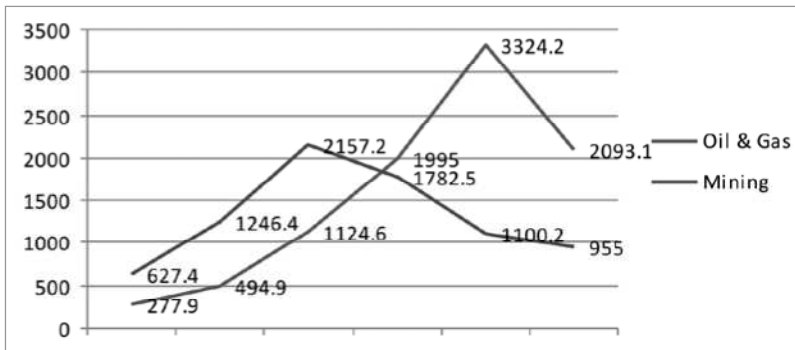
FDI Inflows



Source: World Bank, (2010)

FIGURE 5

Colombia Oil, Gas and Mining FDI Inflows
Data in million dollars



Source: UPME, (2009)

¹² The legislation allows the Colombian Government to enter in Legal Stability Contracts for the following activities: tourism, agribusiness, mining, free trade zones, oil and gas, telecoms, infrastructure and others. Ley 963 de 2005.

¹³ In 2012 the monthly minimum wage in Colombia is 566.700 Colombian Peso (COP). The exchange rate estimated is 1.800 COP to the dollar:

Colombian Regulatory Framework for the Mining Industry

The Law 685 of 2001 is the Colombian Mining Code and one of the first features it describes is the issue of ownership of minerals, "the minerals of any type and place, located in the soil or subsoil, in any natural physical state, are exclusive ownership of the State" (Colombia Mining Code, 2001) investors are allowed to participate in the mining sector once they have entered concession contracts. This law provided the general framework for mining development in Colombia, the scope of the law covers mining titles rights, services, foreign participation, the delimitation of reserved zones, prospect, development and briefly some environmental issues.¹⁴ The Law 1.382 of 2010 is the most recent amendment to the Colombian Mining Code; no structural changes were made to the original framework. Instead, the protection sensitive ecosystems like the prohibition of mining in places above 3.000 meters above sea level and the protection of Ramsar Convention sites.¹⁵

The National Mining Plan to 2019 was developed in 2006 in order to describe the coordination of policies among the different levels of government. (UPME, 2006) Three main aspects are covered in this Plan; first the *Promotion of the Mining Country*, with this policy the government aims to position the Colombian mining industry to compete in the international market. The second part of the plan is *the improving of productivity and competitiveness* of the mining sector following sustainability principles and strengthening the social base of the country. Third, *to achieve the proper management of mining resources* through the optimization of policies that supports this strategic sector.

The National Mining Plan identified irregularities in the Colombian mining sector; some of them are; illegal mining operations, environmental deterioration associated to il-

legality, child labor and inappropriate funding for mining operations.

The National Government designed the strategy of the Mining Districts (*Distritos Mineros*) in order to mitigate the effects of the mentioned irregularities. (Ministerio de Minas y Energía, 2009b). The Mining Districts are zones with strategic and geological continuity that might be in several jurisdictions, but the operational principles are competitiveness, coordination and sustainability.

The National Mining Policy also takes into the account the **infrastructure challenges** that the mining sector presents. In order to have an economic and efficient mining project, sound and efficient infrastructure (railways, ports) is crucial. The National Government of Colombia in coordination with local authorities is investing in the upgrade of ports and other key transportation infrastructure.

The participation of the mining sector in Colombia's GDP (excluding hydrocarbons) reached 2.8% in 2004¹⁶, not very significant when compared to the mining share of GDP in Chile 15.6% in 2009 (Business News Americas, 2010a) or Peru 5.7% in the same year (U.S. Department of State, 2010). The current Mining Policy and the Colombian Mining Code objectives are to position the sector at par with other Latin American mining countries (Peru, Mexico, Chile, Brazil, and Argentina) and eventually above the Latin American mining GDP average.¹⁷

The Colombian National Council on Economic and Social Policy (CONPES) published the national policy regarding the competitiveness and productivity in a collection of economic sectors, among them, the mining. The goals described there include the "consolidation of investment, both domestic and foreign in the mining sector [...] and the increase in production and variety of mineral supply including value added products." (DNP CONPES, 2008, p. 56)

¹⁴ The specific environmental framework is found in the Law 99 of 1993.

¹⁵ The legislation can be found at: http://www.simco.gov.co/Portals/0/otros2010/ley_1382.pdf

¹⁶ The mining sector share in GDP had a peak in year 2004 according to UPME (2007). It is estimated that the mining sector current share of GDP is in the vicinity of 2.6% of GDP.

¹⁷ According to some information, the mining share of GDP in the LAC region is around 7%. (UPME, 2006, p. 81).

The Administration of President Juan Manuel Santos passed a Constitutional Amendment in order to overhaul the National Royalty System (Ministerio de Hacienda y Crédito Público & Ministerio de Minas y Energía, 2011)¹⁸, aimed to update the regulatory framework according to new policy objectives and the forecasted inflow of investment in this specific sector of the economy. This amendment changed only two articles in the Colombian Constitution but the regulatory implementation is still in the making.

The rationale behind this amendment is that the National Mining Policy will attract massive amounts of investment to Colombia and the creation of a Stabilization Fund modeled after the world wide known cases of the Norway's Government Pension Fund and/or Chile's Copper Stabilization Fund in order to avoid the economic effects of natural resources exploitation known as the **Dutch disease**.

The 'Dutch disease' a phrase coined by The Economist newspaper in 1977 describes the impact of natural resources dependence in a country macroeconomic

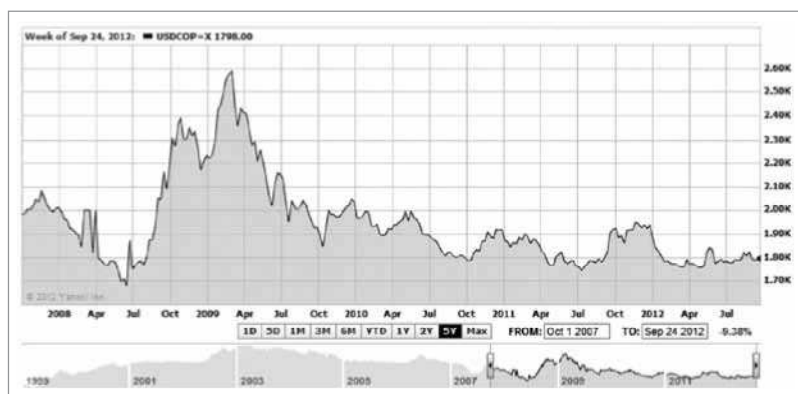
situation. Among the effects of this malaise is; **currency appreciation** due to the rents obtained by the commodity export thus rendering other sectors of the national economy as less competitive causing de-industrialization and increasing the dependence on natural resources exports.

Moreover, oil and gas production and mining are capital intensive activities generating a perverse effect on the labor market (Sachs and Warner, 1997, p. 6 and *passim*). According to estimates by the Ministerio de Minas y Energía investments up to 57 billion dollars are expected in the mining sector from 2010 to 2015, these massive investments will increase the inflow of foreign currency and may appreciate the Colombian Peso.

The following chart shows the exchange rate between the Colombian Peso (COP) and the U.S. Dollar for the last five years. The trend seen is an evident appreciation of the Colombian Peso. The COP traded at around 2.600 to the dollar in the week of March 2, 2009 and appreciated to 1.745 to the dollar in the week of July 11, 2011.

FIGURE 6

Colombian Peso USD Exchange Rate
October 1 2007 to July 24 2012



Source: Yahoo! Finance.

¹⁸ Acto Legislativo 5 de 2011

The aforementioned Constitutional Amendment contemplates the creation of two general funds, one called *Savings and Stabilization Fund* managed by the Colombian Central Bank (Banco de la Republica) in order to mitigate the effects of the volatility in commodity prices and its effects on the exchange rate.

The second fund named *Regional Competitiveness Fund* managed by the National Government and comprised of two sub-funds *Regional Compensation Fund* to operate for 20 years and targeted to develop the poorest regions in Colombia and the other, the *Regional Development Fund*. The purpose of the *Regional Development Fund* is to distribute royalties among the larger population because under the current system, it is estimated that 80% of the royalties reaches regions that make only 17% of the population (Revista Semana, 2010).

The Amendment also includes the destination of 10% of the royalties to “science, technology and innovation projects” implying the implementation of a **Hartwick Rule** or the reinvestment of rents from national resource extraction to offset the declining stocks of exhaustible resources into other forms of capital (human capital or physical capital) that intends sustainability and inter-generational equity.¹⁹

As described in this chapter, there is evidence of the **Mining Renaissance** that Colombia is experiencing due to the set of policies implemented in recent years including the improvement in security, the business friendly reforms and the policies to attract foreign investment. However, these policies also present challenges in institutional development to prevent the adverse effects of natural resources extraction (Dutch disease) and in the governance of the natural capital stock of the country through the multiple funds to be established and the implementation of reinvestment rules.

4. Redefining Exotic

When thinking about international trade in minerals by bulk, iron ore, copper, bauxite and other highly traded minerals come to mind, however there are other minerals that maybe are not traded in such big volume but are critical to the manufacture of mass market products (i.e. consumer electronics) making these refined minerals **exotic yet pervasive**. This chapter discusses briefly the current applications of niobium and tantalum, the **potential deposits** of these elements in **Colombia**, and the importance of these minerals for the Korean industry.

Niobium, which is also known as columbium and tantalum are minerals with similar characteristics and they tend to occur together in mineral deposits. One of the minerals from which niobium (or columbium) and tantalum is refined from is known as coltan, a portmanteau for **columbite-tantalite**.

Niobium and tantalum are strategic minerals deemed critical for both the United States and the European Union because of their importance in key industries (economic importance); the availability or supply risk they present and their importance for emerging technologies.

In order to assess criticality of minerals, a methodology called **Criticality Matrix** was developed in order to tackle this issue. “To be critical, a mineral must be both essential in use (represented on the vertical axis of the matrix) and subject to supply restriction (the horizontal axis of the matrix).” (National Research Council, 2008). The farther a mineral is positioned from the graph’s origin the more critical it is. In order to fully understand the criticality of a mineral is important to know the application for what it is mainly used and its properties (chemical and physical).

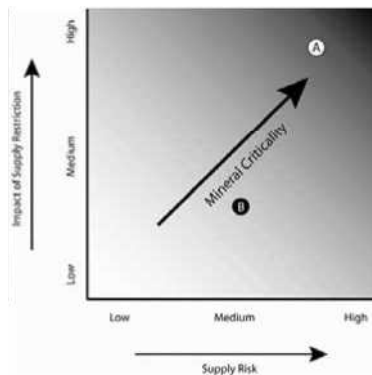
¹⁹ For a description of the Hartwick Rule and some empirical evidence refer to Chapter 4 The Importance of Investing Resource Rents: A Hartwick Rule Counterfactual in *Where is the Wealth of Nations? Measuring Capital for the 21st Century*. (World Bank, 2006).

The following graph shows the criticality matrix, the vertical axis describes the impact of supply restriction, if a mineral is deemed as more important; the impact of supply restriction is greater. Other aspect to consider is the ease of difficulty of substitution, if substitution is rather difficult the impact of a supply restriction is higher. On the

horizontal axis is the risk of a supply restriction. Supply restriction risk can occur in case of a sudden increase in demand, or in case of concentrated production (few players) in the long term supply risk can be manifested as geological availability, environmental availability economic and political availability among others (Eggert, 2010).

FIGURE 7

Criticality Matrix for Minerals



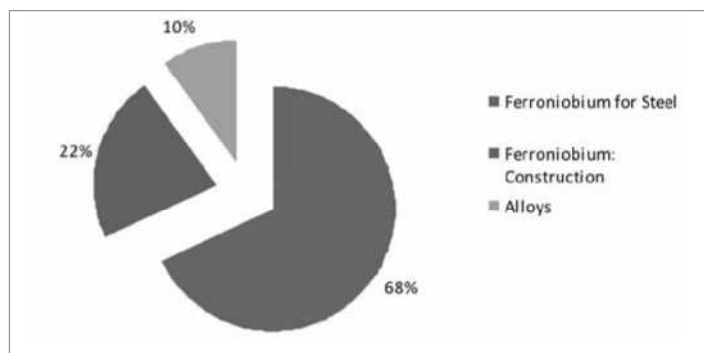
Source: National Research Council, (2008) Figure 1.

Niobium or columbium is a metal with high economic importance due to its multiple applications, among them the use in alloys and high performance alloys. The largest deposits of economically recoverable niobium are located in Brazil and Canada, niobium materials can also be obtained as a by product of tin production (U.S. Geological Survey, 1993, p. 1). The main use of niobium is in the steel industry (about 10% of total steel production uses niobium) as an alloying element in high-strength, low-alloy (HSLA) steels, as the name suggest, these alloys are strong and the alloying element is usually less than 1%. These HSLA steels are currently

used in oil and pipeline steels, used for lighter hence more fuel efficient automobiles and for construction applications (U.S. Geological Survey, p. 4). Ferro-columbium and nickel-niobium are used for super alloys or materials with formidable resistance to high temperatures used for defense and aerospace applications. Applications for niobium by products include superconductors used in high-energy physics research and a potential as confinement magnets in thermonuclear fusion, medical applications included Magnetic Resonance Imaging (MRI) Equipment (European Commission, 2010b, p. 144 and *passim*).

FIGURE 8

Niobium Main Uses



Source: European Commission Report. Ad-hoc Working Group on defining critical raw materials, (2010b) p. 144.

According to European Commission Report, in 2030 the demand for niobium in the production of **microcapacitors** will be **six times higher** than today (European Commission, 2010b, p. 145). Impressive as it sounds, that sector will take only 3% of the total consumption. As shown in the previous graph, most of the niobium goes to the steel sector; and improvements in alloys will be pivotal for the development of materials and applications, proper forecasting has not been done yet but common sense might tell that the steel consumption may increase in the coming two decades. The use of niobium can also be used in catalysts **to convert palm oil to biodiesel**, the development of laser technology and superconductors however the amount use in these specific applications is negligible regarding the larger trend.

Tantalum is the second mineral considered for this research project, it is a ductile and is very resistant to corrosion. The **electronics industry** is the main consumer of this mineral to manufacture **microcapacitors**, a key component in mass market consumer electronics. Other uses include the manufacturing of rectifiers, amplifiers oscillators, and signal devices among others. Tantalum applications also include **cemented carbides**

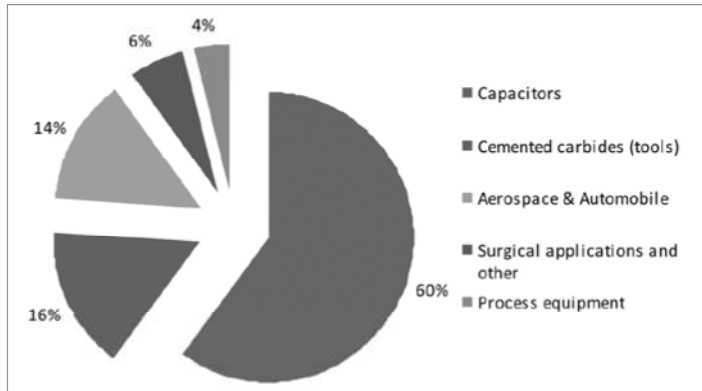
of metals like tungsten, titanium or niobium, also in the aerospace industry due to this element high melting point of 2.996 °C key in the production of refractory superalloys. This element also has **medical applications** like prosthetics devices (perfect due its non-toxic nature), the manufacture of laboratory equipment and even used in nuclear reactors (U.S. Geological Survey, 1993, p. 4).

Australia is the world largest producer of tantalum, followed by Brazil and the Democratic Republic of Congo. Most of the tantalum consumed today comes from primary mineral sources, also as a by product of tin smelting and some estimates calculate that 20% comes from secondary materials, meaning, **recycling**.

As mentioned before the manufacture of microcapacitors for the electronics industry takes around 60% of the tantalum used today, followed by carbides 16%, aerospace and automobile applications, basically alloys taking 14%, medical applications and related technologies take 6% of the consumption and finally 4% goes to process equipment (mainly optics). (European Commission 2010: 190)

FIGURE 9

Tantalum Main Uses



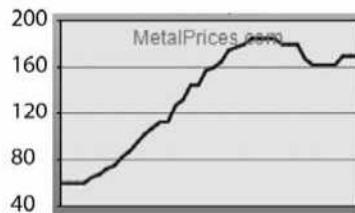
Source: European Commission Report. Ad-hoc Working Group on defining critical raw materials. (2010b) p. 190.

The demand drivers of tantalum in the coming two decades will probably be superalloys and electronics, the tantalum use in microcapacitors will probably triple by 2030, bear in mind that it is that specific sector takes 60% of the tantalum use today.

According to MetalPrices.com, a specialized website, the price of tantalite has increased in price substantially during the last 3 years, from around 60 dollars per pound to over 165 dollars per pound.

FIGURE 10

**Tantalum Scrap 99.9%
Vacuum Processors
3 years - \$/LB**



Source: MetalPrices.com, September 2009 June 2012 (2012)

The largest deposits of coltan are located in the Kivu region in Democratic Republic of Congo but its trade has been declared illegal by the United Nations Security Council Report S/2003/1027 due the fact

that the exploitation and trade of this and other minerals in has had awful implications for the security of the locals, fueling conflict and human rights abuses.²⁰

²⁰ To discuss the humanitarian issue in Congo/Rwanda is not an objective of this document. This information is inserted as reference in order to identify the location of the largest known coltan deposits on Earth.

For the last years, Colombian and specialized news media has covered stories related to the coltan extraction and trade in the **Orinoquía region** (near the border with Venezuela and Brazil). The U.S. Geological Survey has recently identified a site in Brazil named **Seis Lagos** “the largest niobium deposit with 2.9 Gt of ore.” (Berger, V.L., Singer, D.A. and Orris, G.J. 2009)

The Seis Lagos niobium deposit is located in Lat. 0°17'0.00"N, Long. 66°41'0.00"W and very recently the mining authority of Colombia, Ingeominas announced that is conducting a joint **geological survey** with the National University of Colombia in two sites, **Matraca** (390 Kms away from Seis Lagos) and **Caranacoo** (410 Kms away from Seis Lagos) in the Department of Guainia. (Ingeominas, 2010). These three sites are located in the **same geological formation** known as the **Guiana Shield**.

Colombian media has reported the seizure by Authorities several tonnes of illegally mined and traded coltan earlier in 2009 (El Espectador, 2009), this may not sound very newsworthy but the lack of proper **public knowledge** on the geological wealth of the country has created this opportunity for a black market and other effects like the lack of investment in the exploration and exploitation of this mineral. On this issue, a former head of the mining authority told Business

News Americas (2010b), “Currently, we have geological information on **51.5%** of the territory and we expect that in 2015, four years before the 2019 goal, we will have information on 100%.” In the same interview, the same government official mentioned that the National Government is working on the designation of 10 million hectares for the exploration phase of coltan.

South Korea and Resources

This chapter focuses on three main points, first, a brief commentary on the two main industrial sectors that may benefit from the discovery and extraction new coltan deposits; second, a description of the Korean Policy Guidelines for Overseas Mineral Exploration; and third, a brief description of the bilateral relation between South Korea and Colombia.

As discussed in Chapter 4, the two minerals described in this research project have significant value for South Korea's key industries, namely, **steel production** and **electronics**. According to *World Steel in Figures 2010*, POSCO is the **third largest steel company** in the world and **South Korea ranks sixth** in steel production by country. Given the fact that natural resources are exhaustible and consumption is likely to increase; the development of new, untapped deposits is critical for the sustainability of these industries.

TABLE 2

Steel Production by Company

Rank	Company	Mmt
1	ArcelorMittal	77.5
2	Baosteel	31.3
3	POSCO	31.1
4	Nippon Steel	26.5
5	JFE	25.8
6	Jiangsu Shagang	20.5
7	Tata Steel	20.5
8	Ansteel	20.1
9	Severstal	16.7
10	Evrax	15.3

TABLE 3

Steel Production by Country

Country	2009	
China	1	567.8
Japan	2	87.5
India	3	62.8
Russia	4	60.0
United States	5	58.2
South Korea	6	48.6
Germany	7	32.7
Ukraine	8	29.9
Brazil	9	26.5
Turkey	10	25.3

Source: *World Steel in Figures*, (2010) p. 8

On the other hand, South Korea has a **preeminent electronics industry**, this sector is pivotal for nearly every human endeavor today, for example in global communications, finance, education, and government just to name a few, **most of these hardware products** depend on the supply of the mentioned *exotic minerals* for their manufacture process.

South Korea imports 97% of the minerals and fuels it consumes, but this fact has not held up economic growth.²¹ Korea Resources Corporation (KORES) has a criterion to identify strategic minerals as those which have a great impact in national industry, the criteria are minerals which imports exceed 100 million dollars, or the dependency rate exceeds 90% (Republic of Korea, 2009, p. 21)

Nowadays, KORES has identified six major minerals as strategic for Korean industry:

- Soft coal (bituminous coal)
- Uranium
- Iron ore

- Copper
- Nickel
- Zinc

The Ministry of Knowledge Economy of Korea announced in 2009 the creation of an Overseas Resource Development Fund to be capitalized with 1 Trillion Won (892 million dollars) in order to secure resources abroad. The fund will have a startup capital of 110 billion won from Korea National Oil Corp. (KNOC) and KORES and expects to attract the remaining 890 billion won from private investors (Alberta Korea Office, 2010).

In 2007 KORES developed the Third Basic Plan for Overseas Resources Development (2007 – 2016), in this plan it is outlined the main policy tools to promote the exploration and development of mineral deposits (fuels and non-fuels) for a period of ten years, however, the policy is revised every three years according to other sources (Dae-Hyung, Ji-Whan and Hyun-Bok, 2008, p. 140-145). The main goal of this policy is to achieve **38% sufficiency** by 2014 in the six minerals listed in the previous page.

²¹ According to some information, domestic mining in South Korea represents only 0.23% of GDP.

The policies designed to promote the investment abroad (**Overseas Resources Development Business Act**) are soft loans (long term, low interest) for the exploration, development and exploitation of minerals deemed strategic for the Korean economy. Among the operations eligible for financing are **geological survey**, geophysical and geochemical exploration, feasibility studies and others. The financing policy also covers development of mineral deposits, improvement of production facilities, acquisition of equity in mineral projects and others.

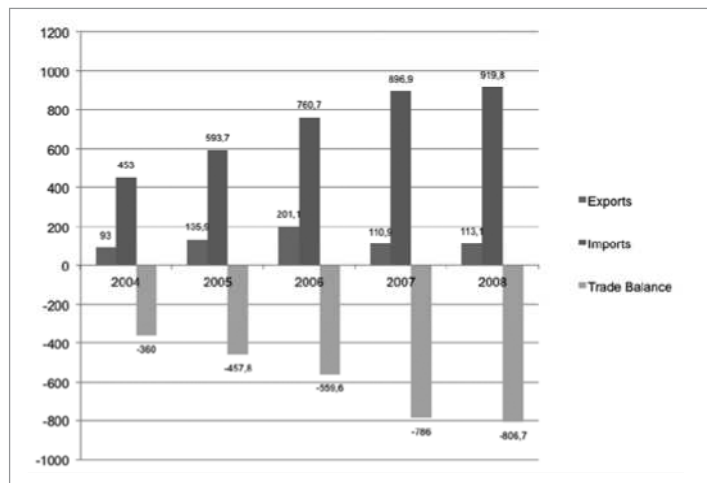
Other incentives for foreign exploration include tax credits and incentives, exemptions in corporate tax and dividend from overseas exploration and production business activities, and the avoidance of double taxation through bilateral double taxation agreements. Mining is risky venture for investors due to the natural complexities of the industry and the long payback periods, that is why the Government provides incentives and offsets related risks through technical assistance, special finance programs and facilities, insurance and other related support programs.

According to the Korean Mineral Information Service (KOMIS), Joint Committees for Resources Cooperation were established with Indonesia, Australia, Philippines, Russia, Mongolia, Saudi Arabia, Vietnam and Colombia. However the last Joint Committee between **South Korea** and **Colombia** took place in **1983** (KOMIS, 2010).

The bilateral trade between Colombia and South Korea shows a negative trade balance for Colombia which main exports to Korea are commodities, namely coffee (34.6%), scrap metals (31.1%), ferronickel (26.9%), other coffee products (2.1%), the rest of the exports are composed by latex balloons, emeralds, leather products, cellulose, candy, yeast, ornamental fish, among others. On the other hand the main imports from South Korea are, vehicles and parts (35.1%), machinery (consumer electronics, mobile phones, elevators and others) (25.8%), chemicals (21.2%) metallurgical products (mainly iron-steel plates) (11.2%) (Ministerio de Comercio, Industria y Turismo de Colombia, 2008).

FIGURE 11

Colombia – South Korea Trade Balance 2004 – 2008
Data in Million Dollars



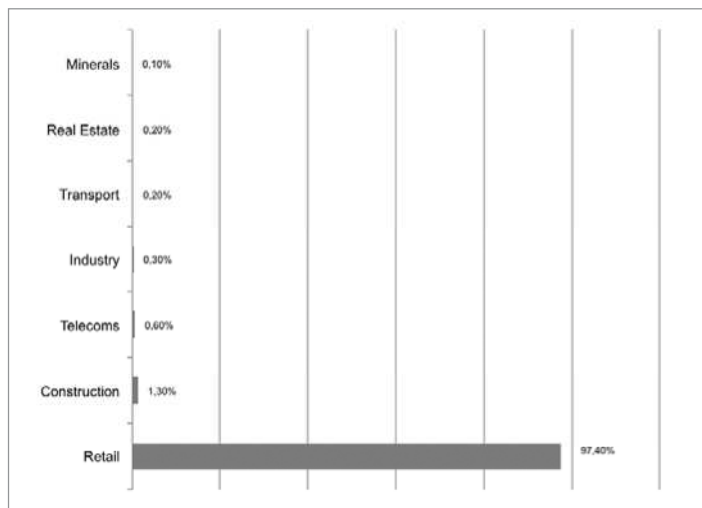
Source: Ministerio de Comercio, Industria y Turismo de Colombia, (2008).

According to the Colombian Central Bank (Banco de la Republica) the cumulative Korean FDI to Colombia from 2000 to 2009 has been US 51.3 million dollars and is heavily concentrated in the retail sector (vehicles, consumer goods, appliances and others). On the other hand the mineral sector is last with only 0.1% of the Investment. Just in 2007 Korean investment abroad totaled 27.6 billion dollars; only 36.7 million dollars (less than 0.5%) were placed in Colombia (Salamanca, Forero and Oviedo, 2009).

Even though the Korean investment in Colombia has focused in the retail sector there is a policy convergence between the two countries, especially in mineral resources development. Colombia has overhauled its institutional and legal framework to attract foreign investment and Korea has established a medium term policy to achieve certain degree of 'sufficiency' through equity acquisitions and investment promotion for the Korean private sector in overseas exploration and production projects.

FIGURE 12

Korea FDI to Colombia by Economic Sector 2000-2009



Source: Proexport, (2010)

In June 2012, Colombia and South Korea concluded free trade agreement negotiations; for the signature of the agreement South Korean President Lee Myung-bak visited in Bogotá, Colombia. It is important to keep in mind that despite the long geographical distance between the two countries there has been significant political, diplomatic and economic exchange. For instance, Colombia was the only Latin American country that sent troops to support the South during the Korean War. Formal diplomatic relations were established in 1962, and embassies

were opened in 1973. In 1986, the bilateral relations deepened with the signature of a Cultural Agreement, Cooperation in Science and Technology and a Trade Agreement. In the late 1980s and early 1990s South Korea provided support in a telecommunication project (Graduate School of International Studies SNU 2009). In recent years (2009 – 2010) Memoranda of Understanding have been signed in areas such as Industrial Cooperation, Mining and Energy Cooperation, Telecommunications, Investment Protection, and Financial Cooperation to Avoid Double Taxation. The

next logical step is to enter in a Free Trade Agreement.

The feasibility studies conducted by Fedesarrollo for the Government of Colombia and by the Graduate School of International Studies of Seoul National University concluded that entering into a FTA with each other was desirable due to the complementarity of each economy and the opportunities, advantages and economic rewards once traded barriers are removed.

Challenges / Conclusions

The recent political, legal and economic environment of Colombia is bringing the attention to the point of creating a **new grouping of economies** with high potential after the BRIC countries. In early 2010, Michael Geoghegan, HSBC Group Chief Executive gave a speech before the American Chamber of Commerce in Hong Kong (Geoghegan, 2010) acknowledging that “the world’s centre of gravity is steadily shifting east and south” and describing how the recovery from the most recent financial crisis is lead by emerging countries. In his speech, Mr. Geoghegan described another grouping of countries that he portrayed as the **new BRICs**, these countries share certain characteristics like “a large, young and growing population, [...] a diverse and dynamic economy, [...] in relative terms, politically stable, [...] each have a bright future.” (Geoghegan, p. 1-2).

The New BRICs are the CIVETS countries. CIVETS is an acronym coined by Mr. Geoghegan and corresponds to Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa. The geographical variety of this group is gratifying as it includes countries from South East Asia, Africa, the Middle East and Latin America.

The introduction of the BRICs acronym by Goldman Sachs Jim O’Neill (2001), the acronym has been widely discussed by media and academia and became a ‘mantra’ for investors, economists, academics and interested citizens. The concept consolidated and eventually turned out as a **self-fulfilling prophecy**. Almost a decade after concept

was introduced; the BRIC countries are in the right path of becoming significant stakeholders in world’s affairs. Hopefully, the CIVETS countries follow a similar path and achieve their potential.

The increased demand for all kinds of commodities has put Latin America and the Caribbean back in the map of investors and policy makers all over the world. Moreover, the financial crisis of 2007-2008 has modified the global geopolitical structure, as pointed by Michael Geoghegan, the center of gravity is moving East and South.

South Korea is not a newcomer in the region it has signed a Free Trade Agreement with **Chile** and most recently with **Colombia**; it has considered negotiations with **MERCOSUR** and attempted negotiations with **Mexico**. In the case of **Brazil**, this country is listed in the top 20 import sources for Korea. The feasibility studies for the South Korea – Colombia FTA describe these two economies as complementary across different economic sectors. The actual outcomes of the implementation of a FTA are still to be seen.

The pattern of **FDI inflows to Colombia** in recent years can be perceived as evidence that the gains in security, the improvement of business climate and the investment promotion measures taken by the Colombian government are paying off and the overhaul of the Mining Law and other legal and institutional changes are preparations for the anticipated investments in this sector.

An important **policy convergence** is found between Colombia and South Korea, on one hand, Colombia is coordinating different policies in order to attract foreign investment to the oil and mining sector; on the other hand, South Korea is promoting the development of overseas mining businesses in order to achieve certain level of ‘sufficiency’. However, the policy convergence still needs to be tested into policy action.

Colombia’s mining renaissance is a concept in the making, the country’s mining GDP is below the regional average but some of its macroeconomic effects are already

seen and debated. The Colombian Peso has appreciated substantially during the last 12 months fueling fears of a case of the 'Dutch Disease'.

One of the measures to 'vaccinate' the country against the Dutch Disease is the creation of **Stabilization and Savings Funds** (modeled after the Norwegian and Chilean experience) mentioned in Chapter 3, in order to establish these funds the Colombian Government passed the Constitutional Amendment Acto Legislativo 5 de 2011, an arduous regulatory and institutional process is required for this initiative to become fully operational because of the magnitude of the changes (basically the redistribution of royalties worth around 6 billion pesos – 3.2 billion dollars).

One notable feature of the Constitutional Amendment is the implementation of a **Hartwick Rule**, basically the re-investment of 10% of the royalties in Science and Technology projects, a true policy innovation in Colombia.

Colombia has proven reserves of oil, gas, coal, nickel, gold and others less valuable but no less economically important minerals. Minerals that are not traded in bulk or are listed in a stock market Exchange-Traded Funds (ETFs). Sulfur, phosphates, potash, wolframite (tungsten) and cassiterite (tin) are just part of the geological wealth of Colombia. Investment in **public knowledge** is crucial; basically the through the elaboration of **geological surveys** in order to identify and locate mineral deposits and assess the potential of these untapped resources. **columbite-tantalite**, discussed in Chapter 4, or better known by its portmanteau coltan, contains elements that are crucial for two of the most important Korean industries, steel and electronics. Geological deposits containing coltan have been identified in the Department of Guainia, Colombia. **A comprehensive geological survey** (geophysical and geochemical exploration, trenching, sampling and interpretation of data) is needed to assess if the mentioned coltan deposits are economically viable.

Mineral extraction creates externalities that need to be properly addressed by policy makers and mining authorities. Pollution and the disturbance of ecosystems are usually cited as the worst externalities related to the mining sector; the concept of **natural capital** should be included in the assessment and viability of extractive projects. Colombia is **rich in biodiversity and water**, elements that are not thoroughly appraised and factored in the decision making process. To determine the value of natural assets is not part of this project but it is an open question for further research in resources policy formulation.²²

Mining is water intensive and some extraction practices use pollutants (mercury or cyanide in the case of gold production). One of these processes is called **leaching**, the use of water mixed with cyanide to isolate the gold particles from the ores containing it. Alternate, less polluting methods like **bioleaching** (the use of oxidizing bacteria instead of cyanide for the separation process) are currently available but not enforced. (Mohd et al., 2009)

Comparative studies among resource rich countries suggest that good **governance and institutions** determine if natural resources abundance can be considered a 'blessing' or a 'curse'. Resource rich countries with weak institutions are usually prone to corruption and immersed in internal conflicts. Colombia has enjoyed functional institutions but more can be done on governance issues like transparency.

The Extractive Industries Transparency Initiative (EITI) has been proposed as a model for governance and transparency; however compliance is voluntary and depends on the willingness of national governments. On the other hand, a push for transparency in the mining sector was included in the recently adopted Financial Regulation measures of the **United States Dodd-Frank Act of 2010**. In this massive document, dedicated largely to set regulation for the financial sector; there was included a short but extremely impor-

²² Given the increased awareness in environmental issues and the imminent risks posed by climate change, the valuation of natural capital is a very recent trend in policy formulation. The UNDP Report *TEEB – The Economics of Ecosystems and Biodiversity for National and International Policy Makers* is a great primer for further study.

tant rule that will affect the transparency practices of corporations dedicated to oil, gas and mineral production.

The so far ignored **Section 1504** of the Dodd Frank Act will impose transparency by law to worldwide corporations which file their reports with the United States Securi-

ties and Exchange Commission (SEC). Oil, gas and mining companies will have to disclose details in the payments made to foreign governments. The scope and reach of Section 1504 need to be studied in order to comprehend the real implications of this piece of legislation for all stakeholders.

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ANNEX I

Latin America and the Caribbean growth in Exports of Raw Materials 1990-1999 and 2000-2009 (Average annual growth rates in value)

Region/Country	Raw Materials Exports	
	1990-1999	2000-2009
Latin America and the Caribbean	2,6	11,4
South America	2,7	13,0
Andean Community	4,5	13,5
Bolivia	-1,3	21,1
Colombia	5,4	10,6
Ecuador	3,9	12,4
Peru	4,7	19,1
Venezuela	-3,1	8,8
Chile	7,9	13,4
MERCOSUR	4,8	15,0
Argentina	7,5	8,1
Brazil	3,8	19,2
Paraguay	-5,1	17,2
Uruguay	0,7	15,0
Central American Common Market	6,4	4,9
Costa Rica	7,2	1,4
El Salvador	4,8	-2,0
Guatemala	6,6	7,9
Honduras	4,4	8,5
Nicaragua	4,0	7,6
Mexico	1,8	6,3
Panama	9,7	-0,1
Cuba	...	-30,6
Dominican Republic	...	13,0
CARICOM	-1,4	12,2

Source: ECLAC (2010), p. 95

ANNEX 2

Doing Business Report 2010 Top 10 Reformers 2008/2009

Country	Starting a Business	Dealing with Construction Permits	Employing Workers	Registering Property	Getting Credit	Protecting Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Closing a Business
Rwanda	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Kyrgyz Republic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Macedonia, FYR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		
Belarus	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
United Arab Emirates	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Moldova	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			
Colombia	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Tajikistan	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
Egypt, Arab Rep.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>					
Liberia	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		

Source: WORLD BANK (2009) p. 2.

ANNEX 3

Investing Across Borders –Colombia and Selected Latin American Countries²³

Index Economy	Mining Oil and Gas	Agriculture and Forestry	Light Manufacturing	Telecoms	Electricity	Banking	Insurance	Transportation	Media
Argentina	100.0	100.0	100.0	100.0	100.0	100.0	100.0	79.6	30.0
Bolivia	49.0	100.0	100.0	49.0	49.0	100.0	100.0	89.8	100.0
Brazil	100.0	100.0	100.0	100.0	100.0	100.0	100.0	68.0	30.0
Chile	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Colombia	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	70.0
Ecuador	100.0	100.0	100.0	100.0	85.4	100.0	100.0	69.8	74.5
Mexico	50.0	49.0	100.0	74.5	0.0	100.0	49.0	54.4	24.5
Peru	100.0	100.0	100.0	100.0	100.0	100.0	100.0	89.8	100.0
Venezuela	74.5	100.0	100.0	100.0	85.7	100.0	100.0	20.0	20.0

²³ WORLD BANK GROUP, 2010, P.18-19