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Christian Velasquez-Donaldson

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Analysis of the Hydrocarbon Sector in Bolivia: How are the Gas and Oil Revenues Distributed?*

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Christian Velasquez-Donaldson[♦]

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[♦] Part of this paper was presented by Christian Velasquez-Donaldson to obtain the Master of Arts degree in Sustainable International Development at The Heller School for Social Policy and Management, Brandeis University, 415 South Street MS 035, Waltham, MA 02454. Contact information: cvdonald@brandeis.edu or cvdonaldson@wri.org

EXECUTIVE SUMMARY

This report analyzes the importance of the hydrocarbon sector in Bolivia. The oil and gas sector currently represents a vital component of the Bolivian economy, accounting for 7 percent of the GDP in term of production and more than 30 percent of total government income. In addition, the hydrocarbon sector not only represents an important economic sector but also a political and social instrument for negotiations, mobilization and social participation. The hydrocarbon sector in Bolivia also plays a strategic geopolitical role in South America as it has the second largest reserves of natural gas in the region after Venezuela. However, the current Bolivian nationalization process has placed this privileged position of the country into question as Bolivia is trying to undo twenty years of neo-liberal policies with the adoption of more nationalistic policies, assuming the control of the sector and challenging the international community and the private sector to benefit its population.

The report also exposes that the important hydrocarbon revenues are not evenly distributed across the country's regions. The most important instruments of taxation, royalties and the IDH, are creating a disequilibrium implying that regions with large populations get considerably fewer resources than less populated regions. In addition, the current distribution system, which is based on political criteria with some regional notion of fairness, is discriminatory in the allocation of resources with out taking into account poverty criteria. In a poor country like Bolivia with a strong political framework on poverty alleviation, the lack of poverty criteria in the distribution system of such significant resources makes 1.5 million poor people from La Paz get fewer resources than 300 thousand poor people from Pando in terms of per capita distribution (\$16 dollars per capita in La Paz vs. \$600 dollars per capita in Pando).

The report has found that the distribution system of the hydrocarbon revenues needs serious changes to be more efficient and accomplish the goal of poverty reduction. The current system of revenue allocation creates significant per capita inequalities between regions and exacerbates the regional dependency on central transfers that depends on exhaustible and unstable hydrocarbon production (92 percent of the prefecturas' revenues and 66 percent of the municipalities' revenues come from government transfers). In addition, the decentralization process of the country has several weaknesses. It does not allow local governments to create their own tributary policies and generate their own resources, with exception of municipalities that to some extent can administrate and collect two regional taxes defined by the central government.

This disequilibrium has the potential to seriously threaten the unity of the country as a nation. This situation will encourage producing regions to push for a large degree of decentralization in order to take advantage of the enormous inflows of resources that the sector is generating. In addition, non-producing regions will push for a significant share of those large resources given the severe degree of poverty in the country. This leads to two important questions to ask; first, who owns the natural resources, producing regions or the central government, and second, how those revenues should be distributed?

In general, those questions are hard to answer and in most cases the answers have significant political notions. In this aspect, the report presents results of a hypothetical calculation in which we combine to some extent the notion that producing regions have the right to a share of the revenues as does the central government. Because producing regions have solid arguments to claim ownership, like natural heritage and social cost reimbursement, we found undesirable and unviable the idea of completely draining those resources from them. Nonetheless, the central government also has significant arguments to have a share of those revenues, like income stability, fiscal equilibrium and macroeconomic considerations. Therefore, we found it important that the central government should benefit from a share of the natural wealth. However, the results of the hypothetical exercise presented in this report have the objective of opening the debate and dialogue for needed changes in the Bolivian hydrocarbon distribution system rather than suggesting a definitive answer for a distribution system in Bolivia.

ABBREVIATIONS

| | |
|--------|--|
| BCB | Banco Central de Bolivia Central Bank of Bolivia |
| CPE | Constitución Política del Estado <i>The Bolivian Constitution</i> |
| CFMU | Compensatory Fund for Municipalities and Universities |
| CT | Coparticipación Tributaria <i>Tributar-Revenue Sharing</i> |
| FCD | Fondo Compensatorio Departamental <i>Compensatory Departmental Fund</i> |
| GDP | Gross Domestic Product |
| HIPC | Highly Indebted Poor Countries |
| IANDF | Internal Aid for National Development Fund |
| ICF | Indigenous and Campesinos Fund |
| IDH | Impuesto Directo a los Hidrocarburos <i>Direct Tax to Hydrocarbons</i> |
| IEHD | Impuesto Especial a los Hidrocarburos y sus Derivados <i>Especial Tax to Hydrocarbons and Derivatives</i> |
| IGP | Institutions and Governance Program |
| IMF | International Monetary Fund |
| INE | Instituto Nacional de Estadísticas <i>National Institute of Statistics</i> |
| IT | Impuesto a las Transacciones <i>Tax to Transactions</i> |
| IUE | Impuesto a las Utilidades <i>Tax to the Enterprise Profits</i> |
| IUE-RE | Impuesto a las Utilidades-Remesas al Exterior <i>Tax to the Enterprise Profits-Abroad Shipments</i> |
| IVA | Impuesto al Valor Agregado <i>Added Value Tax</i> |
| LPG | Liquid Petroleum Gas |
| MMCFD | Million Cubic Feet Daily |
| RAF | Red de Analysis Fiscal <i>Fiscal Unit of Analysis</i> |
| RC-IVA | Régimen Complementario al Impuesto al Valor Agregado <i>Complementary Regime of the Added Value Tax</i> |
| SII | Servicio de Impuestos Internos <i>Internal Tax Services</i> |
| SOE | State-owned enterprises |
| SURTAX | Impuesto a las Utilidades Extraordinarias <i>Tax to the Extraordinary Revenues/Surplus Tax</i> |
| TOR | Terms of Referente |
| TCF | Trillion Cubic Feet |
| UBN | Unmet Basic Needs |
| UDAPE | Unidad de Análisis de Políticas Económicas y Sociales <i>Social and Economic Policy Analysis Unit</i> |
| UPF | Unidad de Programación Fiscal <i>Fiscal Unit Programming</i> |
| WB | World Bank |
| WTI | West Texas Intermediate |
| YPFB | Yacimientos Petrolíferos Fiscales Bolivianos <i>Bolivian Oil Company</i> |

1. Introduction

For the last twenty years, Bolivia, one of the poorest countries in South America, was influenced by the neo liberal economic model guided by the International Monetary Fund (IMF) and the World Bank (WB). In the process, Bolivia implemented deep structural changes in its economy, like intense capitalization¹ of the major national enterprises. Following this initiative, the government passed legislation to regulate the decentralization process of the administration and spending capacity of local governments. These policies together were expected to lead to growth and stability by open markets and inflows of foreign investment.

In this process of restructuring the economy of the country, in 1994, former president of Bolivia Gonzalo Sanchez de Lozada passed Law 1544 “Capitalization Law”, which authorized the Executive Branch the sale of 50 percent of the state company’s shares (Barja, McKenzie, and Urquiola, 2005). Two years later, in 1996, Law 1689, a new hydrocarbon law, was created to regulate and normalize the hydrocarbon activities in the country, adjusting the production and management of the oil and gas sector to the new political reforms that follow an economic liberalization.

Until that year, the state oil company, YPFB (Yacimientos Petroliferos Fiscales Bolivianos) had all the rights to explore, extract, industrialize and commercialize natural gas and oil in Bolivia, and after that year, progressively YPFB became a regulator of the sector rather than an active participant on the sector production and commercialization. Since then, the Hydrocarbons Law was subject of many debates about the distribution of the benefits of gas and oil, and the potential favoritism with the Hydrocarbon Law toward transnational corporations.

However, Law 1689 and subsequent foreign investment allowed the discovery of significant reserves of natural gas in southern Bolivia, while the discussions within the country were further complicated by the rise of oil prices and conflicts related to ownership, commercialization and distribution of natural gas revenues.

On October of 2003, a social crisis erupted, many conflicts arose after the government announced the possibility of building a pipeline from Bolivia to Chile where gas would have to be processed and liquefied before being shipped to Mexico and United States. This plan was heavily opposed by the Bolivian population; first because the resentment still alive based on the Pacific War of 1879 in which Bolivia lost its sea coast with Chile and its access to the Pacific Ocean. And second, because under the current Law 1689, Bolivia would still be a raw material exporter selling gas with any value added.

Under these circumstances, the Bolivian population went on strike denying the government’s plan and demanding the nationalization of the hydrocarbon sector, the domestic energy

¹ Capitalization is a process where state companies are divided in three independent parts: the state, which is the Bolivian society through their pension fund, workers of the remaining enterprise and the private sector. In this process, 50% of the former state company’s shares are sold to the private sector that becomes the new administrator of the company; the other 50% is divided between Bolivians and workers.

demand being met and the industrialization of natural gas in Bolivia before export. And after the so called Bolivian Gas War², Gonzalo Sanchez de Lozada was obliged to abdicate his office. As a result, his vice president, Carlos de Meza Gisbert, took office in 2003. He called for an Energy Referendum in 2004 (Box 01) and for a popular agreement on the usage, exports of Bolivian natural gas reserves and, in addition, whether to nationalize the sector.

In May 2005, the Bolivia government passed Law 3058, a new version of the Hydrocarbon Law, repealing the former Law 1689. The new law was to ensure a more equitable distribution of the benefits of gas and oil and gain control of the production chain of the hydrocarbon sector by the state. However, in June, 2005, due to the growing social crisis and the popular demand for a complete nationalization of the oil and gas sector, Carlos de Meza Gisbert had to abdicate the office and Eduardo Rodriguez Veltze, his successor in the office, a transitional government, called for new presidential elections.

Now, since the presidential elections in December 2005, Bolivia is experiencing a new political wave. The political party, Movement towards Socialism, took office on January 26th 2006, marking the beginning of new, potentially transforming policies and practices of government:

We plan to enter into a new era of government by recovering and industrializing the non-renewable and renewable natural resources, supporting a sustainable exploitation and extraction of these resources and pursuing that the benefits are distributed directly to Bolivians (Movimiento al Socialismo, 2006).

On May, 2006, the newly elected president, Evo Morales Ayma, who is considered the first indigenous president in Bolivia, placed the Bolivian hydrocarbon sector under state control by passing the Supreme Decree³ of Nationalization 28701. The decree obliges all transnational and international companies to return to the state, through YPFB, the production of oil and gas fields and sign new contracts ensuring a greater percentage of the gas revenues for the state and reasonable profit for the oil companies.

Under this decree of nationalization, companies had a 180-day transition period to renegotiate and sign new contracts with YPFB if they want to operate in Bolivia, otherwise, they must leave the country. At the same time, the new president also guaranteed that this nationalization process would not take on the form of expropriation or confiscation of facilities, but clearly stated that “Bolivia wants partners in business not bosses.” (Evo Morales’ speech to the United Nations, September 22, 2006)

² The Bolivian Gas War was a social conflict in 2003 centering on the exploitation and export of natural gas, which is the second largest reserve in South America. 750,000 people, most of them indigenous surrounded La Paz city for three days causing fuel and food shortage. Protestors were against the government export policies of gas via Chile to Mexico and the United States. They also were against gas exportation with out industrialization. However, these were not the only cause of the blocked. Among the concerns were also the coca eradication policies pushed by the government of the United States. The excessive violence used by the military led 80 deaths and the president Gonzalo Sanchez de Lozada was forced to abdicate office.

³ A Supreme Decree is an authoritative order having the force of law passed by the Executive Branch in order to regulate and apply the law. A Supreme Decree does not have to be approved by the congress.

Box 01: The 2004 Energy Referendum

The Energy Referendum of 2004 was a consultation process done by the Electoral National Court over hydrocarbon policies. The population decided whether to export its natural gas to Mexico and the United States via Chile, the process of nationalization, the new hydrocarbon tributary system to collect the gas revenues and a strategy to attend the Chilean demand for gas in exchange of a sovereign port in the Pacific Ocean. Through the energy referendum the population was asked to answer five questions that would set the basis for the changes of the Bolivian hydrocarbon policy. The questions were:

1. Do you agree with the repeal of the Hydrocarbon Law # 1689 passed by President Gonzalo Sanchez de Lozada?
2. Do you agree with the recovery of the hydrocarbons at the well head for the state?
3. Do you agree with the foundation of YPFB, for the second time, to recover ownership of its shares that were sold to the international companies and therefore participate in the whole production chain of the hydrocarbon activities in the country?
4. Do you agree with President Carlos Mesa on using gas as a strategic mechanism to recover a sovereign port in the Pacific Ocean?
5. Do you agree with exporting gas under a national policy that:
 - Fulfills the domestic demand of gas consumption
 - Encourages the industrialization of gas on Bolivian territory
 - Charges taxes and royalties to the oil companies reaching no less than 50 percent of production value of gas to be used on education, health, infrastructure and employment?

After the polls, the Electoral National Court reported that only 60 percent of the population that is able to vote went to polls. The results of the referendum are the following:

| Questions | Yes | % | No | % | Total |
|-----------|-----------|-------|---------|-------|-----------|
| 1 | 1,788,694 | 86.64 | 275,742 | 13.36 | 2,064,436 |
| 2 | 1,913,642 | 92.19 | 162,130 | 7.81 | 2,075,772 |
| 3 | 1,793,594 | 87.31 | 260,610 | 12.69 | 2,054,204 |
| 4 | 1,055,529 | 54.80 | 870,772 | 45.20 | 1,926,301 |
| 5 | 1,179,893 | 61.74 | 731,021 | 38.26 | 1,910,914 |

At the end of the negotiations, transnational oil companies agreed to sign new contracts with the Bolivian government. With these contracts, the state has recovered control of the energy sector and increases the government take of the hydrocarbon revenues to more than 70 percent (“La Razón”, “El Diario”, 2006).

These new contracts mark a new era for the hydrocarbon sector in Bolivia with the generation of enormous amounts of income for the state. With these events, Bolivia not only has significant amounts of resources to fund its social expenditures but also a major responsibility of managing and distributing the hydrocarbon wealth through its different levels of sub governments to accomplish the goal of reducing poverty and promoting the inclusion of the indigenous people of Bolivia.

That said this report seeks to understand and answer the questions: What are the criteria for the collection and allocation of the resources from hydrocarbons? How are hydrocarbon revenues distributed in Bolivia? In this report the term of hydrocarbon revenues involved not only royalties but also specific sector taxes that contribute to the state. The report also seeks to explore to what extent these revenues support poverty alleviation strategies and policies within the central and local governments. Finally, a further objective of the report is to explore the level of decentralization and dependency on government transfers from the gas and oil sector and its impact on Bolivian public policies.

The report begins the analysis with a historical description of the Bolivian hydrocarbon sector. Sections 2 and 3 explore the beginning of the hydrocarbon activity in the country. They describe the growing importance of natural gas for the country and briefly explores the differences between natural gas and different energy sources. Section 4 describes in a comparative manner the tributary system of current hydrocarbon legislation with former one. Sections 5 and 6 describe the Bolivian mechanisms and instruments to generate income. Then, section 7 describes the importance of the hydrocarbon revenues compared with other sectors of the Bolivian economy. Section 8 explores the criteria for distribution of the sector's revenues, its influence on the budgetary system of local governments and the level of dependence on central government transfers. Finally, section 9 analyze and discusses the findings, briefly explores the expenditure capacity of local governments and the uses of the hydrocarbon revenues on social policies in order to make relevant conclusions and recommendations.

The methodology used to write this report was, in the first place, data collection and review of the literature (papers and reports) related to the situation of the oil and gas sector in Bolivia. Since poverty alleviation is partially a function of access to and distribution of resources, an important part of the methodology was the search for relevant data that would allow mapping generation of benefits from natural gas and how such benefits are distributed to local governments. The sources used to collect data included libraries and the internet. However, due to the difficulty of accessing information, especially in developing countries like Bolivia, a field trip to Bolivia was essential to gather information and to ensure its accuracy and the inclusion of local input in the research.

The main outcome of the field trip was the access to and inclusion of primary and secondary information in addition to accurate and updated data in order to make the evidence discussed as robust as possible. However, because the nationalization of the Bolivian hydrocarbon sector is an ongoing situation, and the government currently is in internal negotiations to reform the distribution system of revenues, it is not possible to measure specific impacts of the sector on social and economic outcomes.⁴ Therefore, it is important for the reader to take note of the limitation to the approach taken in this report due to the period of analysis.

⁴ In this regard, using a CGE model of the Bolivian economy, a study has been done on the distributional impact of natural gas resources by Lykke E. Andersen (2006). The study simulates possible changes in the Bolivian economy due to the increase of natural gas exports focusing on the changes in income distribution between different types of households without geographical dimension.

2. The Hydrocarbon Sector⁵

In the 1930's, the hydrocarbon sector of Bolivia became an important part of its economy. The state became an important player on this sector after the War of Chaco (1932-1935) which was a conflict involving Bolivians and Paraguayans over the territory of El Chaco located in the southeast of Bolivia. The Chaco region geographically is divided in two sections, north and southern Chaco. At the end of the war, Bolivia had lost the southern part of El Chaco to Paraguay. The region of El Chaco is a territory with high probability of having important hydrocarbon reserves, which was one of the most important causes of the war. However, until now significant natural gas reserves were only found in the Bolivian part and not in the Paraguayan side.

Before 1920's, Bolivia did not have any regulation on hydrocarbon activities. During those years any person, citizen or foreign, could request concessions with out limit to explore and produce petroleum. The first hydrocarbon law was signed in 1921 under the name of Organic Law of Petroleum. This law set a maximum of 100,000 hectares as concession and creates a set of patents to be paid and a royalty of 11 percent of the production. Even though the Organic Law of Petroleum set a maximum of hectares to be exploited, Standard Oil, an American oil company, got the monopoly of the sector with almost 7 million hectares.

During the War of Chaco and in order to finance the conflict, the government of Bolivia requested the support and loans of every enterprise that was operating in the country including Standard Oil. Nonetheless, Standard Oil had denied any aid to Bolivia, even the supply of gasoline for the air force, and in addition in advance royalty payments. Furthermore, Standard Oil started to remove equipment and ship them to its facilities in Argentina.

Then, to the Bolivian government's surprise, in 1935, the government of Argentina informed it about illicit exports of petroleum from Standard Oil Bolivia to the Standard Oil Argentina in 1925 and 1926. Based on these accusations the government of Bolivia ordered an investigation of the case. As a result, Standard Oil Argentina confessed they imported petroleum from its subsidiary in Bolivia. Finally Standard Oil Bolivia admitted they had been exporting petroleum to Argentina through a clandestine pipe they built from Bolivia to Argentina. However, they argued that there is no illegal action in this export because the petroleum belongs to them and the only dishonest behavior was to elude the royalty payments on that production.

Under these circumstances, in 1936, Yacimientos Petroliferos Fiscales Bolivianos, YPF, was created as the state oil company in charge of exploration, exploitation and commercialization of hydrocarbons within Bolivian territory. And the first nationalization of the hydrocarbon sector took place right after the end of the Chaco War, in 1937.

With the creation of YPF, the government of Bolivia ordered the caducity of the Standard Oil concessions and contracts and took over its facilities to get control of petroleum production. However, Standard Oil appealed to reverse the nationalization process and in

⁵ Most of this section was based on the Libro de Oro YPF (Golden Book of YPF) and the YPF's reports 1999, 2001, 2006.

1942, it forced the Bolivian government to pay \$1.75 million, as indemnification, for the devolution of technical documentation that Standard Oil had kept after the nationalization.

By 1941, YPFB, under state control, was a consolidated oil company supplying more than 30 percent of the domestic market and generating revenues of \$17 million for the country. During the 1940's and 1950's the hydrocarbon activity in Bolivia became very successful for the country. Bolivia became a net petroleum exporter with all its domestic demand satisfied. However, the hydrocarbon activities of exploration and exploitation demanded heavy investment and Bolivia did not have enough economic capacity to satisfy the needs of a growing YPFB and at the same time meet the needs of its population.

Therefore, in 1955, the government passed a new law called the Petroleum Code or Davenport Code with the addition of a new tax accounting for 30 percent of the company's profits. The new legislation repealed the Organic Law of Petroleum. This new legislation also allowed foreign companies to sign joint operational contracts with YPFB and 14 foreign oil companies entered Bolivia including the Gulf Oil Company from the United States.

During the 1960's the production of hydrocarbons started to decrease. The Argentinean market for natural gas, however, was willing to sign a purchase-sale contract with Bolivia to satisfy its growing domestic market. Therefore, the Bolivian Gulf Company and YPFB joint in a mix company with 50 percent of shares for each to deliver natural gas to Argentina. However, in 1969, the government of former president Alfredo Ovando Candia decreed the nationalization of the Gulf Oil Company arguing that the contracts were damaging the Bolivian economy. The technical argument for that nationalization was that the Gulf Oil never paid the 30 percent utility tax during its time of operation in the country arguing that it was discounted from its investments.

Since the application of the Davenport Code, Bolivia had changed its hydrocarbon legislation four times following the political program of former governments: in 1972 with the General Law of Hydrocarbons, in 1990 with Law 1194, in 1996 with Law 1689 that facilitated the capitalization of YPFB and finally in 2005 with the current Hydrocarbon Law 3058 that allowed the latest nationalization.

3. The Bolivian Natural Gas⁶,

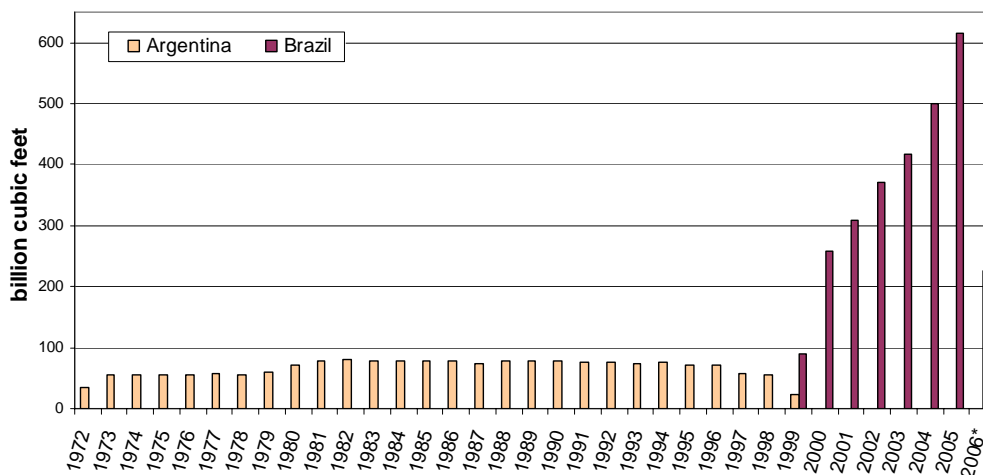
Historically, Bolivia is characterized by its strong dependence on specific primary commodities, from silver to tin and then natural gas. During the decades of 1930 to 1970, tin represented an important commodity for the Andean country, accounting for more than 60 percent of its exports (Andersen and Meza, 2001). However, that period of tin-dependence ended in 1985 when the international tin market collapsed leaving an overwhelmed Bolivian

⁶ One thing that is worth to point out here is that Bolivia is not a Petroleum producing country. On the contrary, it is a gas producing country by excellence. Even though Bolivia has significant oil reserves, its vast reserves of natural gas placed the country as second country with the largest reserves of natural gas in America after Venezuela. Bolivia holds the highest non-associated gas reserves in the region, which means that its reserves are mostly of free gas compared with Venezuela where half of its natural gas reserves are associated with other gases that increases the overall cost to process of producing liquids (Medinaceli, 2004; Furtado et.al., 2006).

economy that reached the most severe economic crisis in its history. During the decade of the 1980's, Bolivia was facing a collapsed tin market on one side but on the other side, increasing oil prices⁷. Consequently, there was a new opportunity for natural gas (Box 02).

Bolivia through its state-owned oil company, YPFB, started its natural gas exports to Argentina in 1972 with a 20-year contract that was progressively updated until 1999. For 27 years, Bolivia's natural gas exports were dependent on Argentina as its sole buyer. In 1995, however, Argentina's proven natural gas reserves increased threefold over 1970 levels (Campodonico, 1999). Bolivia was facing the inevitable end of gas sales to Argentina that ended its dependence on Bolivian gas in 1999. But in the mean while, Bolivia had begun negotiations with Brazil to export natural gas in 1991. It was not until 1999, however, that the Brazilian market completely replaced the Argentinean one.

Figure 01: Evolution of the Bolivian Natural Gas Exports (1972-2006)



2006*: exports until April
Source: YPFB

In 1996, a new hydrocarbon law (1689) was approved with attractive incentives for private oil companies to invest on the oil and gas sector of the country. This new law, jointly with the Capitalization Law of 1994, allowed the breakup and capitalization process of the state-owned oil company (YPFB), which progressively abandoned its entrepreneurial role in the hydrocarbon sector and became merely the regulator of the sector.

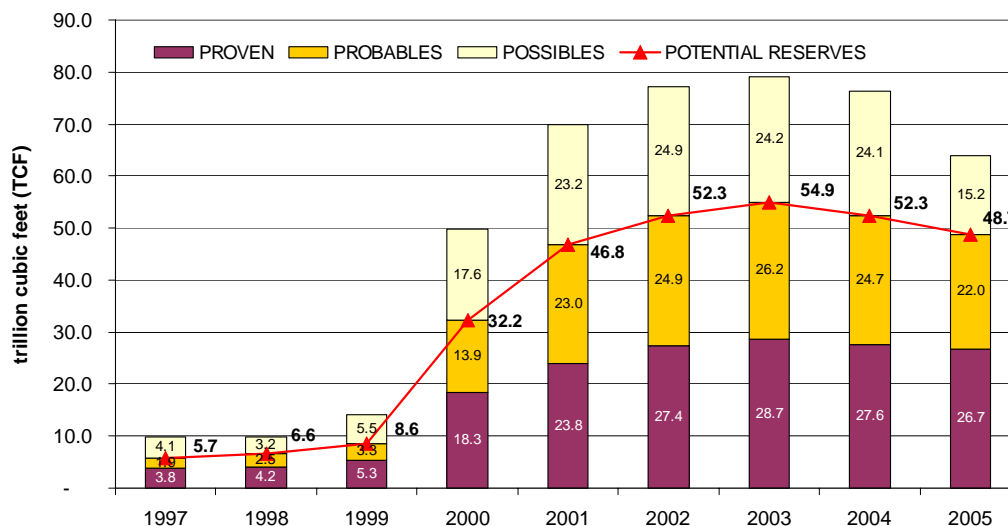
The government proceeded by inviting foreign oil companies to invest in the sector in return for 50 percent of shares and more than 80 percent of the value of production in its favor. The private companies, on their side, promised to invest in the sector at least to the capitalization value within the first 8 years. In this sense, YPFB was divided into three different companies, each one consisting of a consortium of transnational companies. Two of the companies were

⁷ Due to the lack of a world gas standard pricing mechanism, it is very common that prices of natural gas get linked to a basket of different oil prices. This aspect makes the gas market fluctuate, following the international oil prices.

created for activities of exploration and production; and the other for activities of transportation.

These reforms, led by former president Gonzalo Sanchez de Lozada, redefined the respective roles played by the government and the private sector liberalizing the economy of the country following neo-liberal policies largely adopted worldwide after World War II. As a result, natural gas reserves increased enormously making Bolivia the country in the region with the second largest natural gas reserves after Venezuela.

Figure 02: Bolivian Natural Gas Reserves (1997-2005)



Source: YPFB

By 2005, the reforms were very successful in terms of direct foreign investment to the country. There was an apparent improvement of the oil sector during the last 10 years where proven/probable and possible natural gas reserves augmented enormously from 14.1 in 1999 to 63.9 TCF in 2005, (Figure 02) while the gas exports to Brazil have increased almost five fold over 1999 levels. In addition, there was a reopening of the Argentinean market in 2004. Despite all these factors that pointed to the apparent improvement in the sector, there were serious concerns about the benefits of these exports.

The major concerns were especially about the tributary system of Law 1689 and the government's share of the natural gas revenues upon which a significant part of total government's revenues depends. The root of these concerns were on one hand, the royalty collection system, which allocates a large share of hydrocarbon revenues to oil companies, 82 percent, rather than the government itself, 18 percent.

Another concern was that the new legislation did not promote any industrialization of natural gas making the country highly dependent on raw material exports. This situation jeopardizes the inflows of natural gas revenues in the country due to the fluctuating income through royalties that depend on international oil prices (Andersen and Meza, 2001). In other words,

as Bolivia is highly dependent on gas income, changes in the international oil prices would hurt its economic stability.

On the other hand, as a major concern among the population, there was also the uneven distribution of gas benefits within the Bolivian regions, producing and non producing departments. All these concerns erupted in several conflicts related to the hydrocarbon sector. These conflicts tragically ended up in the Bolivian gas war, the resignation of two presidents and the third nationalization of the Bolivian hydrocarbon sector.

Box 02: Natural gas markets and its particularities

Natural gas has become a unique commodity for which demand has grown very fast during the last twenty years. Compared with other fossil fuels, natural gas has a very different market path and commercialization. First of all, because of its gaseous state, it cannot be stored in large quantities without high costs. What is more, its distribution requires large amounts of capital investment that makes its transportation cost account for almost 50 percent of the total final consumer price while transportation costs for oil represent 5 to 10 percent of its final price (D'aponte, 2003).

Another difference between gas and other fossil fuels is the nature of their respective markets. Due to the high cost of transporting gas from the production to the consumption area, there is no global market for it. The gas trade is done largely at the regional level where the gas is produced and therefore there is no world standard pricing mechanism like in the oil market with the West Texas Intermediate (WTI) and other benchmarks in oil pricing. The gas price is set at the city gate, which is geographic point chose in agreement by the gas exporter country and the importer one.

In addition, natural gas is always competing with other energy substitutes. In terms of domestic demand there are electricity, heating oil and Liquid Petroleum Gas (LPG). In terms of industrial demand there are coal and oil. In terms of electricity generation there are again oil, coal, nuclear energy and hydropower. Therefore, pricing policies are very important for the natural gas market due to the variety of available substitutes.

Each section of the production chain of natural gas is strongly connected, with each having a very important role to play, from the wellhead to the final consumer. Therefore, small and remote discoveries of natural gas are not viable due to the high cost required. In addition, due to its capital-intensive characteristics, gas production cannot be developed without a serious long-term commitment between producers and consumers; otherwise, the investment is not viable.

Another important difference when compared with other fossil fuels is that natural gas production is driven by demand rather than by production. In other words, there has to be a considerable demand to justify the huge amounts of investment that production requires throughout its different stages, beginning at the wellhead and continuing through its transportation and delivery to the final consumer.

4. Tributary System of the Hydrocarbon Legislation

With the approval of the Law 3058 in 2005, the government made considerable efforts to improve the tributary system that governs the hydrocarbon sector on behalf of the Bolivian population. These changes were made as a result of several conflicts that created tension in Bolivia's political, social and economic stability. With the new version of the hydrocarbon law, the government repealed former Law 1689, which was the cause of concerns and social unrest for almost ten years since its conception.

Law 1689⁸

In general terms, since the capitalization of YPFB and Law 1689, the state-owned company could not be part of the decision making process on any of the stages of the production chain of the hydrocarbon industry. YPFB was divided in three companies with less than 50 percent of shares. In addition, former Law 1689 also had divided the total hydrocarbon production into new and existing hydrocarbons.⁹

For existing hydrocarbons, it was stipulated that 11 percent of the gross hydrocarbon production at the wellhead, be allocated as departmental royalty, which was payable for the benefit of the department¹⁰ where the production originates.

Law 1689 had also set a compensatory national royalty of 1 percent of the gross hydrocarbon production at the well head for the benefit of Beni and Pando, the poorest departments of the country. It had also stipulated 6 percent participation in favor of YPFB that should be transferred to the Nation's General Treasury after deducting the necessary funds to cover YPFB's budget for the administration of contracts.

⁸ For a detail discussion of prices and market conditions during 1990-2005 see Medinaceli (2003) and (2004), Napoleon Pacheco (2006) and Villegas (2004)

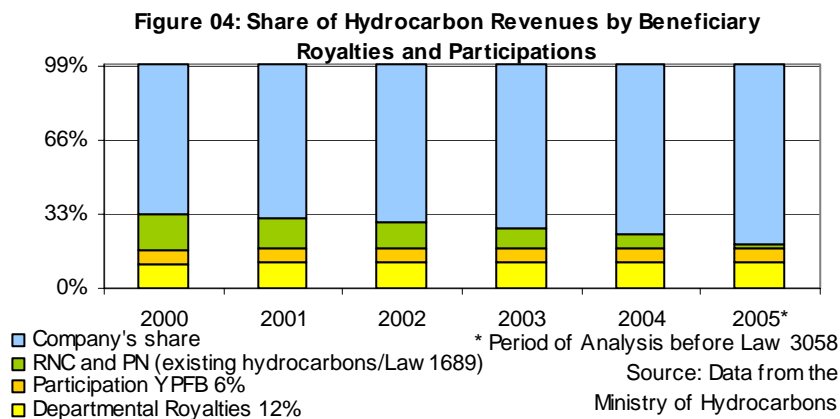
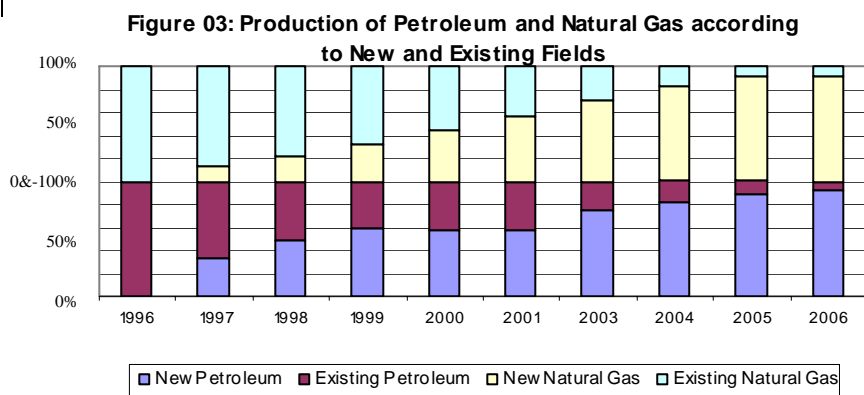
⁹ Law 1689 had classified, at first, as new hydrocarbons those hydrocarbons of reservoirs whose production begins from the date of the enactment of the law. And as existing hydrocarbons the ones from reservoirs that are in production at the date of the enactment of the law. Many of the natural gas fields including the mega fields San Alberto and San Antonio (the largest reserves of natural gas in Bolivia) were discovered before Law 1689 was applied. They were already in production but with smaller proven reserves and bigger probable reserves as in the case of San Alberto (YPFB's Golden Book: 1936-1996; Villegas: 2003 p. 84-89). This situation did not favor oil companies due to the share of royalties charged to existing hydrocarbons (50%). Therefore, oil companies put pressure on the government to change that situation conditioning investment. Finally, two months after Law 1689 was enacted, the government passed Law 1731 that modified the definition for new and existing hydrocarbons. The critical issue of Law 1689 was that it classified hydrocarbons in terms of production, proven and probable reserves. On the other hand, Law 1731 had divided the Bolivian gas reserves on new hydrocarbon and existing hydrocarbons taking into account production activities and only proven reserves. Since then, existing hydrocarbons are the hydrocarbons corresponding to the proven reserves of reservoirs that are in production at the date of the enactment of the present law and certified to the 30th of April of 1996 (the day when Law 1689 was enacted) by specialized companies on the basis of norms generally accepted in the petroleum industry. Contrarily, new hydrocarbons are all hydrocarbons not contained in the existing hydrocarbon definition.

¹⁰ Bolivia is politically divided in nine departments as sub governments: La Paz, Oruro, Potosi, Pando, Beni, Cochabamba, Chuquisaca, Tarija and Santa Cruz.

It also established a complementary National Royalty payable to the Nation's General Treasury on the production of existing hydrocarbons, which was equivalent to 13 percent of the value of the production.

Finally, it also stipulated a participation of 19 percent contribution to the benefit of the Nation's General Treasury, which was on behalf of YPFB in the previous provision, Law 1194. Together, royalties and participations amounted to 50 percent to the government for existing hydrocarbons.

On the other hand, in terms of new hydrocarbons, Law 1689 had stipulated a departmental royalty on behalf of the producer departments of 11 percent of the gross production value. A compensatory national royalty for Beni and Pando of 1 percent and a 6 percent participation on behalf of YPFB, which is transferable to the Nation's General Treasury with the same characteristics as for existing hydrocarbons.



Consequently, for new hydrocarbons, the government accounted only for 18 percent of its gross production value since 1996. As previously mentioned, this classification of new and existing hydrocarbons and their respective revenues collection created concern among Bolivians, especially since the discovery of enormous natural gas reserves that will contribute with only 18 percent of its production. The proportion of existing and new hydrocarbons in 1997 was 67/33 for oil and 87/13 for natural gas,

whereas in 2005 was 13/90 for oil and 9/91 for natural gas. This unfavorable situation reduced the government's take in revenues from 33 percent in 2000 to 19 percent in 2005 before the creation of Law 3058 (Figure 04), which exacerbated tensions in the population that forced two presidents to resign office in less than two years (for more details refer to Table 08).

Despite the successful strategy of attracting direct foreign investment to the sector with Capitalization Law 1544 and the vast incentives for transnational corporations to operate in the country with Law 1689, the latter lacks adequate mechanisms¹¹ for the progressive reversal process of the unfavorable situation for the country in terms of the royalty system where 18 percent of the value of production is for the state and 82 percent is for companies taking into account that existing hydrocarbons will disappear as new hydrocarbons are discovered (Figure 03).

In terms of measures to inject capital to the sector and boost the upstream activities, the former law was a complete success. Between 1997 and 2005, foreign direct investment was higher than \$4 billion just in this sector (Furtado et.al., 2006). Furthermore, these favorable conditions for foreign investment and transnational oil companies allowed the dramatic increase of proven and probable reserves, especially of natural gas, which represents the most important hydrocarbon resource for Bolivia. Nonetheless, what is questionable is whether the government has benefited from this measure; and even more, if the Bolivian population itself has seen the benefits. McGuigan (2007), for example, has shown that the privatization of the Bolivian hydrocarbon sector has brought very limited benefit for the government and much more for foreign companies, while Andersen & Faris (2004) found that the natural gas boom contributes to an increase in inequality in the country.

Law 3058

On the other hand, Law 3058 had a popular mandate supported by the National Energy Referendum on taking back the control of the hydrocarbon sector to the state. Furthermore, it stipulates the foundation for the second time of YPFB as the state-owned company to assume control of every stage of the hydrocarbon chain production (Articles 5 and 6).

According to Law 3058, the new tributary system imposes a 50 percent share of hydrocarbon revenues on all fields within the Bolivian territory. The new provision maintains the 18 percent royalty share for every hydrocarbon without any distinction. However, in addition to the 18 percent royalties, it stipulates the creation of the Direct Tax to Hydrocarbons/Impuesto Directo a los Hidrocarburos (IDH) to be applied within the Bolivian territory at the upstream level. This new tax accounts for 32 percent of the total hydrocarbon production and is charged at the fiscal point¹². Together, royalties and IDH must not be less than 50 percent of the total value of production on behalf of the state in accordance to article 8 of Law 3058.

¹¹ Actually, in 1996, it was created a new tributary mechanism to reverse the unfavorable royalty system of 18 percent for the government and 82 percent for companies. This mechanism, SURTAX, taxes the extraordinary revenues collected by companies related to activities of exploitation of non renewable resources. However, since 1996, the government could not apply the tax and collect any income. This mechanism is explained in more detail in other section.

¹² The fiscal point is the area where hydrocarbons are measured after they have been set up for transportation. Measures are according to: volume and density for petroleum, volume and heating power for natural gas and weight in metric tons for LPG. For those fields that do count with extraction facilities of LPG and/or natural gasoline, the fiscal point is located at the end of the field just before the transportation pipeline system. And for those fields which do not count with extraction facilities for LPG and or natural gasoline, the fiscal point is defined by the Article 138 of the Law 3058, which defined the fiscal point as the liquid/fluid separation system exit.

Law 3058 as in the previous one establishes royalties and participations as mechanisms for getting revenues from hydrocarbon production. In this aspect, it defines a departmental royalty of 11 percent of the total departmental production at the fiscal point that has to be paid for the benefit of the department where the production originates.

In addition, a compensatory national royalty of 1 percent of the total national production at the fiscal point that has to be paid for the benefit of the departments of Beni and Pando in two thirds and one third respectively. This is in accordance with what is stipulated in Law 981 of March 7, 1988. Finally, Law 3058 stipulates 6 percent participation in favor of the Nation's General Treasury of the total production at the fiscal point. It is important to point out that Law 3058 establishes that royalties and participations are not subject to any deduction for consumption, compensation or costs for exploration, exploitation and transportation at the fiscal point.

In terms of revenue distribution and state control of the hydrocarbon sector and in contrast to current Law 3058, Law 1689 had allocated 6 percent of participation on behalf of YPFB, although its function was to be only an administrator of the contracts. On the other hand, and even though Law 3058 gives back to YPFB the control of the whole chain production of the hydrocarbon sector, it did not allocate any monetary resource to the state-owned enterprise to perform such activity. However, with the nationalization process of 2006, the lack of allocated resources for YPFB was taken into account and regulated by Supreme Decree 28701 that created a transitory 32 percent share on behalf of YPFB while the negotiations of the new contracts were on the table.

In this aspect, the Supreme Decree 28701 established a 180-day period of transition for foreign oil companies to renegotiate and sign new contracts with the new YPFB as major shareholder if they want to operate in Bolivia. The nationalization decree mandates that during these 180 days those fields where the natural gas average certified production of year 2005 has exceeded 100 MMCFD, the distribution of the value of the production will be 82 percent for the benefit of the state and 18 percent for the benefit of the private companies. In contrast, for those fields which the natural gas average certified production for the year 2005 was less than 100 MMCFD, the current distribution of the value of the production, 50 percent, will remain the same in accordance to the Law 3058.

This new distribution responds to the creation of a new 32 percent participation in favor of YPFB. The YPFB's share plus the 18 percent of royalties and the 32 percent IDH explained above, accounts for 82 percent for those high production fields. This enormous inflow of resources to YPFB had the function of economically strengthen the state-owned company before take control of the hydrocarbon chain production during the transition period where the new contracts were under negotiations.

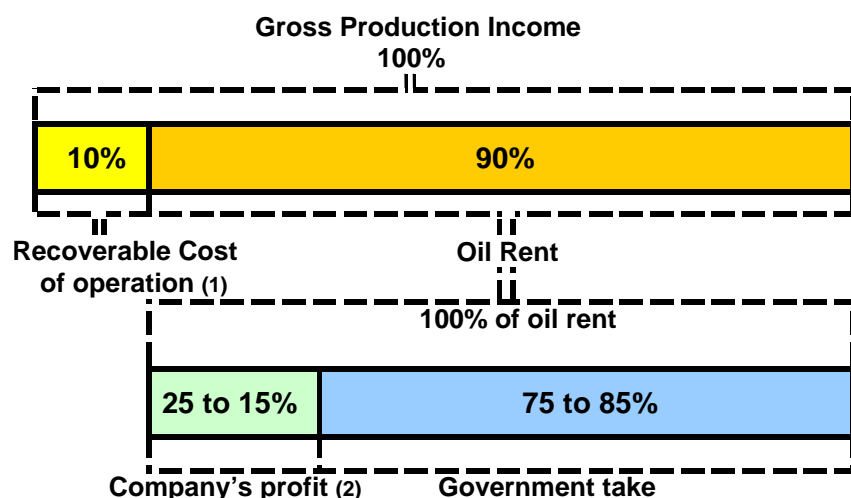
According to YPFB's statistics, by the end of 2005, ten companies were producing natural gas in 49 fields. However, from those fields, only two fields have fulfilled the requirements of producing more than 100 MMCFD to pay the 32 percent participation on behalf of the state-oil company. Those fields are San Alberto with 310.35 MMCFD and Sabalo with 380.66

MMCFD. These two fields are located in Tarija and are operated by Petrobras-Bolivia, a subsidiary of Petroleos de Brazil, which is the Brazilian state-oil company.

After the negotiations, 44 new contracts were signed by all companies operating in Bolivia establishing a variable oil rent. This variable system depends on variables like the amount of investment by oil companies, depreciation rates, paid taxes by oil companies that were not recognized as recoverable costs¹³, and the volume of hydrocarbon produced.

With this new formula, the government take comes from the oil rent¹⁴ rather than from the gross production income. In this sense, from the gross production income, every oil company will discount its operation cost. This operation cost shall be calculated and submitted by each oil company to YPFB every month. And YPFB shall audit the recoverable cost every three months. From the remaining amount, the oil rent, the government will take in average around 75 to 85 percent as revenues (50 percent from royalties and IDH and the rest is from YPFB's participation) depending on the above-mentioned variables. And the rest goes to the oil companies as profits.

Figure 05: Variable Oil Rent System



- (1) The percentage presented is just estimation in order to explain the Oil Rent System based on the model contract between YPFB and oil companies
- (2) The company's profit will vary according to the level of their investment

In other words, current contracts are Contracts of Operation. This type of contracts, in general, specify that any individual or collective person, national or international, public or private could execute at their own risk and with their own resources activities of exploration and exploitation under the area specified by the contract. It also stipulates that the contractor, in this case the company, shall give the gross production to YPFB with exception of the hydrocarbons used to facilitate the production. YPFB shall pay the contractor its recoverable

¹³ According to the 44 contracts signed by oil companies and YPFB, every tax and contributions are consider as recoverable cost with exception of royalties, IDH and the enterprise utility tax (IUE).

¹⁴ The oil rent is the result of taking off the company's cost of operation from the gross value of the production.

cost of operation and from the remnant it shall pay first royalties, participations and IDH. Thereafter, YPFB shall divide the remnant as profits between the company and itself.

On the other hand, the former 79 contracts are the type of Joint Venture Contracts. These contracts specify that any individual or collective person, national or international, public or private could execute at their own risk and with their own resources activities of exploration, exploitation and commercialization of the hydrocarbons. In these contracts, the contractor has the ownership of the hydrocarbons and therefore they shall pay royalties and participations (Villegas, 2004).

However, these new contracts apparently have significant incentives for oil companies to increase their operation costs. The fact that the operation costs will be considered recoverable by foreign companies suggests that it is very important for the government to have detailed and strong regulations about what is considering recoverable cost. According to the new contracts, annex D and F explain in more detail the variable oil rent system and the considerations to take into account in defining these recoverable costs. However, and despite these annexes, it is not clear what the limits are in order to claim specific operation costs as recoverable cost. Therefore, unless Bolivia counts with strong and detailed regulations about this topic, it is very likely that foreign companies would increase their cost of operation as they know that they will be reimbursed.

Table 01: Coparison Table of Revenue Share between Law 1689 and Law 3058 (1)

| Hydrocarbons revenues | Former Law 1689 | | New Law 3058 & S.D. 28701 |
|--|-----------------------|------------------|---------------------------|
| | Existing Hydrocarbons | New Hydrocarbons | Hydrocarbons (2) |
| Departamental Royalty | 11 | 11 | 11 |
| National Royalty (Beni and Pando) | 1 | 1 | 1 |
| Complementary National Royalty | 13 | 0 | 0 |
| National Participation | 19 | 0 | 6 |
| YPFB Participation | 6 | 6 | 25-35(3) |
| IDH | 0 | 0 | 32 |
| Total (4) | 50 | 18 | 75-85 |

(1) This table is taking into account only the revenue system collection regulated by the hydrocarbon legislation (Law 1689 from 1996 to 2005 and Law 3058 with the Supreme Decree 28701 since 2005 and 2006), which consist on royalties, participations and IDH. It does not take into account income and contributions from the Bolivian general tributary system which consist on different direct and indirect taxes and tariffs at the national level

(2) In Law 3058, there is not any distinction between new and existing hydrocarbons. The tributary system is applied to the whole production

(3) In the new provision, Law 3058 and S.D. 28701, YPFB participation varies according to different variables that depend on the amount of investment, depreciation rates and paid taxes that were not recognized as recoverable costs, and the volume of gas produced by oil companies

(4) In the new hydrocarbon legislation, the total government take varies depending on YPFB's participation (25-35%). However, the government's share through royalties, national participation and IDH should not be less than 50 percent of the hydrocarbon production

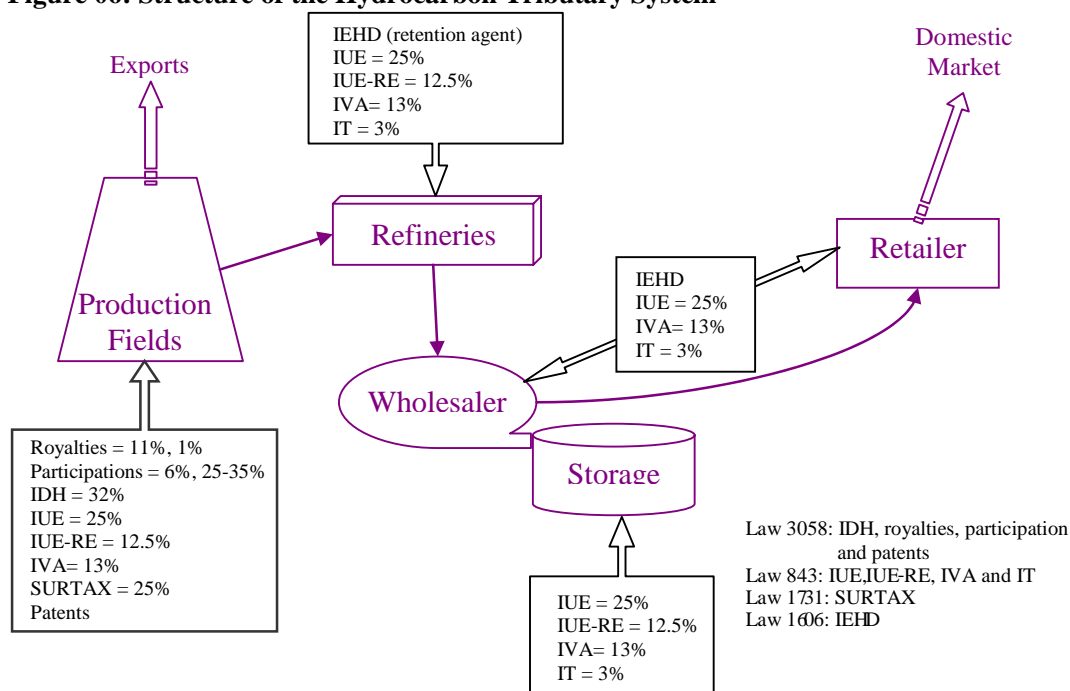
One thing that is also surprising in the new contracts is that they do not guarantee any recovery of investment cost and utilities due to its characteristics of risk operation contracts. YPFB will not assume any risk and responsibility regarding the exploration stage or the result of those until foreign companies have registered the hydrocarbons found as commercial and start their production. The hydrocarbon reserves belong to the state and the production to YPFB. This situation was completely the opposite with the former 79 joint venture contracts signed with Law 1689 where government guaranteed the recovery of investment costs and utilities by given the companies the ownership of the hydrocarbon production.

5. Other Taxes Applied to the Hydrocarbon Sector¹⁵

According to the Bolivian legislation, the hydrocarbon law regulates every activity of this sector including the collection of revenues for exploration and exploitation of the non renewable resource through royalties, participations, patents and the IDH. However, this sector is also subject to direct and indirect national taxation as is stipulated in the tributary system of the Bolivian fiscal policy: Law 843 (current organized text), Law 1606 (Tributary Reform) and Law 1731 (Surtax Law).

The general tributary system of Bolivia is regulated by Law 843 enacted in 1986, which was created as part of the strategy to cut off the hyperinflation and economic crisis of the early 1980's. With its enactment, the Bolivian tributary system radically changed with the creation of seven taxes that are applied at the national level. However, only four national taxes are applied to the hydrocarbon sector: Value Added Tax (IVA), Complementary Regime of the Added Value Tax (RC-IVA), Tax to Transactions (IT), and Tax to the Enterprise Profits (IUE). In addition, there is a modification of the latter that tax the shipment of profits out of the country (IUE-RE) in case of international companies operating in Bolivia.

Figure 06: Structure of the Hydrocarbon Tributary System



¹⁵ This section is not targeted to thoroughly analyze the general tributary system of Bolivia. This section is introducing another source of income of the hydrocarbon sector in the country that is not related to any production activity. The impact of the income generation capacity of the sector will be discussed in other section of the report.

In 1994, the government passed Law 1606 that made significant modifications to the tributary system but kept the essence of the tributary regime established in 1986. However, the main impact to the hydrocarbon sector was the creation of the Special Tax to Hydrocarbons and Derivatives (IEHD). Finally, in 1996 Law 1731 was created that created the Tax to the Extraordinary Revenues related to the extraction and exploitation of non renewable resource (SURTAX). These six specific taxes are applied to different stages of the production chain of the hydrocarbon activity. Furthermore, depending on their characteristics of application, they can be classified as direct taxes and indirect taxes.

On one hand, direct taxes are those taxes that are applied to the companies in general, in this case oil companies. Among this taxes are IUE that account for 25 percent of the company's profits, the IUE-RE that accounts for 12.5 percent of the total amount of profits that were shipped out of the country and SURTAX, which is an additional tax to the company's profits of 25 percent of the extraordinary profits related to the extraction and exploitation of non renewable resources.

The latter tax was created in order to compensate the government when activities related to the extraction and exploitation of non renewable resources are generating profits that doubled the amount invested in such activity. It was also created to compensate the declining generation of hydrocarbon revenues caused by the decreasing trend in royalties taxed to existing hydrocarbons (50% in royalties). The decreasing tendency of existing hydrocarbon royalties is explained by the discovery and exploitation of new reserves that account only for 18 percent of the production. Therefore, according to former government of 1996, SURTAX should have generated resources that are considerably above the 32 percent of royalties that was removed from new hydrocarbons. However, since its creation did not generate any income as was expected by the government in 1996, not even with the mega fields of San Alberto, San Antonio, Margarita and Itau¹⁶.

On the other hand, indirect taxes are those that generate income through the hydrocarbon sector but are not related to production activities or are taxed to the producer, the oil companies. On the contrary, these taxes are taxed to the consumer, the population itself. They pay these taxes the moment they trade and consume any hydrocarbon derivative like gasoline and diesel or any other service related with hydrocarbons like transportation. Among indirect taxes are IVA and RC-IVA that accounts each one for 13 percent of any imports, sales, purchases and services of hydrocarbons inside the country. And finally, the IEHD which is the most important indirect tax of the hydrocarbon sector due to the significant level of contribution to the General National's Treasury.

The IEHD was created in 1994 to have a tributary instrument capable to generate at least the same amount of income obtained before the reforms of Law 1544, Capitalization Law. This

¹⁶ According to Carlos Villegas, current Minister of Hydrocarbons and Energy, there are some prerequisites and conditions that will allow the generation of income through SURTAX. First, it is the establishment of strong auditing mechanisms and institutions to control and monitor the financial movements and balance sheets of transnational companies operating in Bolivia. Second, companies have to have revenues that doubled the capital invested. Third, Surtax can be taxed only if the international oil prices do not decrease. And fourth, Surtax will be charged if companies decide not to invest on the country.

tributary instrument taxes the commercialization of hydrocarbon products, nationals or imports, within the domestic market. The IEHD taxes specific hydrocarbon products incorporating in its price a fixed aliquot set in Bolivians (national currency) that is annually updated according to the devaluation of the currency against the U.S. dollar.

This tax is paid by every Bolivian when they consume any of the hydrocarbon derivatives. It is very important to point out that the IEHD does not tax refineries due to its characteristic of indirect tax. Refineries, in the case of IEHD, are the retention agent (Villegas: 2004). In other words, they include the IEHD in their price before they sell the product to wholesalers and retailers and then they transfer the amount to the government.

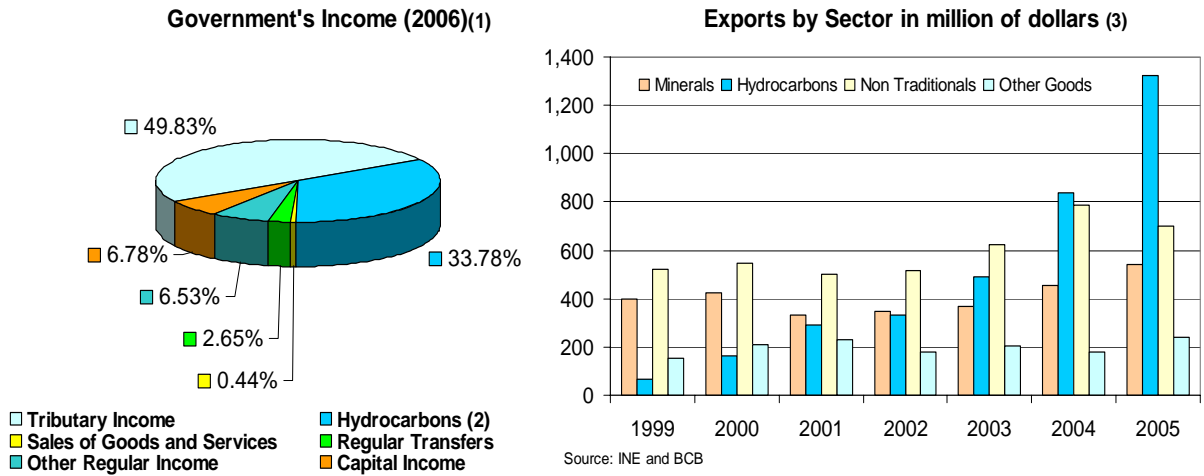
According to Villegas (2004) the IEHD has a very important particularity; the modification of the aliquot is annual and a decision of the Executive Branch via Supreme Decree with out the intervention of the congress. In addition, it is also up to the Executive to add any other derivative of hydrocarbons to be subject of taxation. In this sense, IEHD is managed at the discretion of the government in order to maximize tax collection. This property of the IEHD makes it a powerful mechanism to adjust the capacity of income generation and contributions to the General National Treasury.

6. Income Generation

According to the Bolivian Central Bank and the Ministry of Finance, the government income is built, among others, by two important components; regular income and income of capital. The latter is mainly consisted on donations and loan recoveries. Within regular income, there are five main contributors: tributary income, hydrocarbon taxes, sales of goods and services, regular transfers and other regular incomes. The tributary income is divided in internal rents, duty-pay rents and mining royalties. And it accounts for almost 50 percent of the government's income.

The hydrocarbon sector represents almost 7 percent of the GDP for the country in terms of production, and is Bolivia's currently main commodity export with about \$ 1,321 million in 2005 which represent half of total exports. Just until June 2006, hydrocarbons contributed almost 34 percent of total revenues in the country where natural gas represents 75 percent of the total hydrocarbon exports in the sector.

Figure 07: Exports and Revenues



(1) Data until June, 2006.

(2) From May 2005, hydrocarbon revenues include the IDH which account for 32 percent of total production.

(3) Minerals include: Tin, Tungsten, Antimony, Lead, Zinc, Silver and Gold

Non Traditional: include Sugar, Soy, Flour of soy, Cake of soy, Coffee, Wood, Leathers, Cotton, Oil of

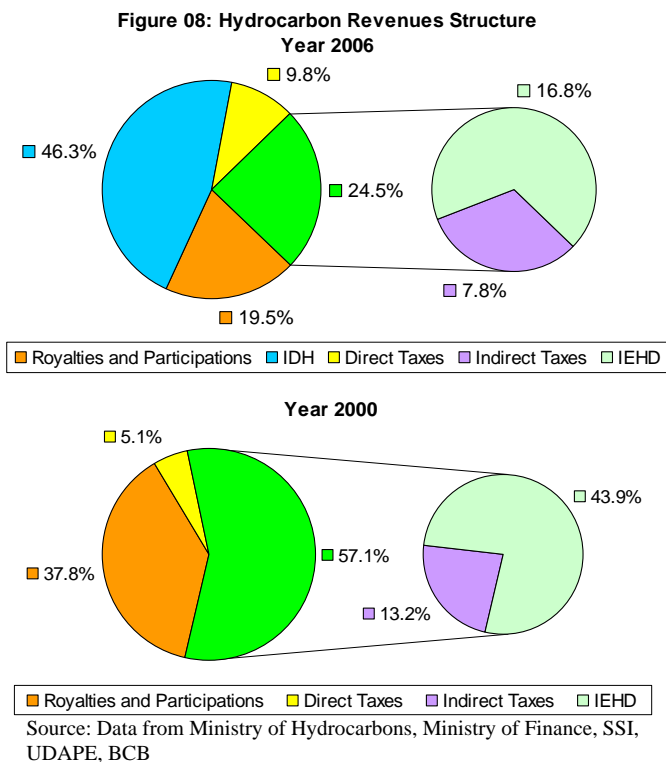
Soya, Jewelry, oily, garments, Crafts, Nuts, Heart Palms in Conserve, Wood Furniture and other derivatives

Source: INE, BCB and Ministry of Finance

The other contributors are mainly composed by sales of goods and services within the internal and external market, regular transfers from state enterprises and private sector, other regular incomes such as recovery of loans and income of capital which is mainly companies' transfers and donations. These contributors all together account for almost 17 percent of government's income.

These figures eloquently describe the importance of the hydrocarbon sector for the Bolivian economy. Not only in terms of hydrocarbon reserves but also in terms of income generation for the country through the tributary system of the gas and oil sector.

7. Hydrocarbon Revenues



Given the complete set of tax instruments described earlier, since 1996 until 2005, the hydrocarbon revenues structure consisted of royalties and participations, direct and indirect taxes including the IEHD. Then, in 2005 it included the IDH.

Figure 08 shows that in 2000, indirect taxes accounted for 57 percent of the hydrocarbon revenues of which IEHD accounted for a significant part at 44 percent. Royalties were about 38 percent of the revenues and direct taxes only 5 percent of the sector's revenues.

On the other hand, in 2006, royalties and participations accounted for 20 percent of the hydrocarbon revenues, and indirect taxes for 25 percent, where the IEHD's share was about 17 percent, a significant reduction since 2000.

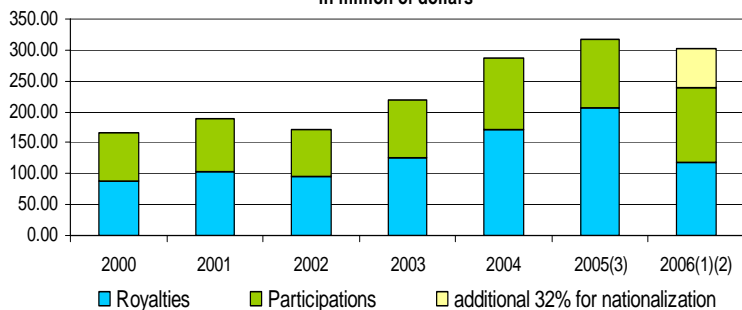
Since its conception until 2006, the IEHD plays a significant role in the sector's tributary system, accounting for a significant share of the revenues. As we saw previously, this tax was created to assure that the government's inflow of income from the sector is at least the same as the previous period before the reforms of 1994.

After 1994, the year when the capitalization process and the reforms to the sector shaped the energy policy of Bolivia, the main hydrocarbon instrument of income generation to the Nation's Treasury was the IEHD and even now its importance is still valid. However, it is very important to point out here that the IEHD, besides its characteristics as an indirect tax that is unrelated to production, is also a consumption tax that has to be paid regardless of any natural gas boom. The creation of this instrument of indirect taxation was critical to support the changes made to the sector, allowed the break up of the state-owned oil company and therefore attracted direct foreign investment to the sector. All these changes boosted the upstream production and incremented the natural gas reserves of the country.

The IEHD is an important revenue-generating instrument not only for its significant contribution to the state, very close to royalties, but also for its characteristic of discretionary management by the government in order to adjust and maximize tax collection from the hydrocarbon sector.

Nonetheless, the management of the IEHD is very delicate in terms of what the population agrees and accepts as an acceptable increment of its aliquots. As we said earlier, the IEHD is an indirect tax; consequently, the population is who pays the tax in every transaction related with hydrocarbon derivatives. The IEHD taxes a variety of different hydrocarbon products that the government chooses. In addition, their aliquot is made in a way that if the price of one of the products increases, the aliquots of every product will expand as well. However, the intensity of the increment and the frequency is variable and at the discretion of the government (Villegas, 2004).

Figure 09: National Royalties and Participations (2000-2006)
in million of dollars

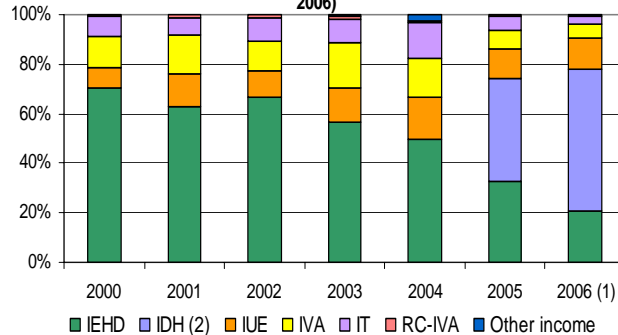


Source: Data from Ministry of Hydrocarbons

(1) Royalties and Participations are collected until June

(2) From May to October there is an additional participation in favor of YPFB due to the Nationalization

Figure 10: Percentage of Hydrocarbon Revenues by Tax (2000-2006)



(1) Data collected until October

(2) IDH started to be collected since June of 2005 year when it was created

Source: SII and Ministry of Finance

However, its apparent diminution from 2000 to 2006 (Figure 10) is explained primarily by its particular characteristic as a flexible instrument of taxation and subject to manipulation by the government. In this matter, the government, since 2000, had reestablished a subsidizing mechanism to freeze the domestic price of special gasoline, diesel oil and LGP the most used hydrocarbon derivatives at the domestic level (Napoleon, 2006). Therefore and even though the government tried several times to liberalize its price to the market forces, concerns among the population that cannot afford high prices on hydrocarbon derivatives made the government step back on its decisions.

In terms of direct taxes, Table 08 shows an irregular pattern that tends to increase since 2004. The irregular pattern of revenue generation through direct taxes is especially explained by the characteristic of the IUE. The IUE taxes the enterprise's profits. Therefore, it depends on the government's capability to monitor and audit the company's financings and on the company's willingness to share the information and accurately report its profits. In this way, institutional transparency is essential for the sustainability of the direct taxes which, in general, account for less than 10 percent of the hydrocarbon revenues.

Royalties and participations did increase, as shown in Figure 09, from more than 150 million in 2000 to more than 300 million of dollars in 2005. However, this appreciation is merely in terms of the government's take in general caused by the increment of production, but as a percentage of gross total sales at the well head, it decreased significantly from 33 percent in 2000 to 19 percent in 2005 as a result of the new and existing hydrocarbons designation in former Law 1689 (Table 08).

Finally, since 2005, the IDH has become the most important source of income from the oil and gas sector. This appreciation is not only because it represents almost 50 percent of the hydrocarbon tax revenues but also because the IDH taxes the value of production as if it were a royalty rather than tax on profits. This particularity makes it a more straightforward income-generating instrument for the Nation's Treasury which facilitates the monitoring and auditing process of its collection process.

8. Revenue Distribution System

Bolivia has three important levels of administration. The country is politically divided in 9 departments, each with its own sub government called prefectura. Each department is divided in different municipalities according to its territory; therefore; the number of municipalities per department varies completely. In total, Bolivia is divided in 352 municipalities.

Thus, resources are administered by three levels of government: central government, prefecturas and municipalities. According to the Bolivian legislation, the two most important laws that regulate the transfer system of resources are Law 1654 (Administrative Decentralization) and Law 1551 (Popular Participation) and in terms of the hydrocarbon sector, Law 3058.

Law 1551 classified the state income into three main groups: national, departmental and municipal incomes. Making up the national income are national taxes like IVA, RC-IVA, IUE and IT that are applied to the hydrocarbon sector as well. The current tributary system of Bolivia defines that the creation of taxes and the definition of their jurisdiction (national, departmental or municipal) is an attribute of the central government through the legislative and executive branches.

In terms of departments, royalties are the only income-generation instrument for prefecturas. Prefecturas do not have judicial power to establish any tributary policy. Central transfers from the central government are the second source of income for prefecturas; among them are funds provided by the Fondo Compensatorio Departamental/Compensatory Departmental Fund (FCD), a share of 25 percent of the total IEHD and the IDH. Therefore, its role is limited to economic administration of the financial resource transfers from the central government.

On the other hand, municipalities have the faculty to generate their own income by collecting specific taxes established by the central government according to the municipal jurisdiction; among them are property taxes and automobile taxes. However, like departments, municipalities are not able to create and establish their own tributary system for income generation.

The distribution and decentralization policies of Bolivia were created as part of the reforms that took place since the 1990's including the capitalization process. They were developed as part of the strategies that stabilized the country after the economic crisis of the 1980's. However, after 13 years of implementation, there are still many complains about the

effectiveness of the measures at demanding a deeper decentralization process, as is seen in the case of the eastern regions of the country, which in addition are the wealthiest of Bolivia.

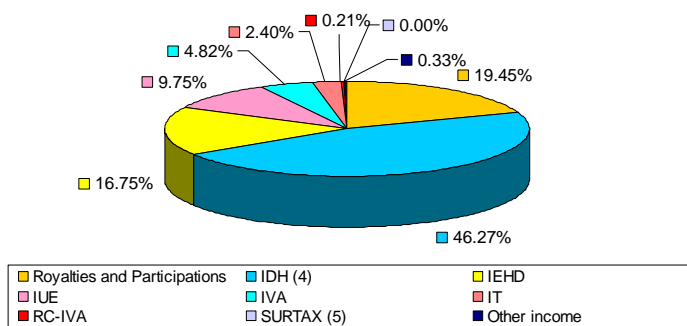
These concerns are not limited to demands for more decision-making power by local governments, but also to solve the increasing vertical and horizontal financial disequilibrium that affects the Nation's Treasury and the regions.

A decentralization process that allows local governments to create and develop their own tributary system reflects the idea of a full decentralized system of financial and economic administration. However, if the system is not articulated and regulated in some extent by the central government transfers, there is the risk of creating significant macroeconomic disorders due to the proliferation of doubled taxation and an inefficient low-potential system of collection (Pereira, 2006).

According to Zapata (2005), Bolivia lacks of an efficient and equitable system of transfers. The reforms of the 1990's have jeopardized the equilibrium of the system causing severe inequalities among regions. His assertions point out that the distribution system of the country does not follow any criteria to enhance the quality of life of the populations and does not create incentives for local governments to generate their own income and efficiently deliver services.

8.1. Departmental Distribution

Figure 11: Tributary System of the Hydrocarbon Sector (2006)



Royalties

Figure 11 shows the share of each component in proportion to total revenues of the tributary system of the hydrocarbon sector that has to be distributed within the Bolivian regions. As mentioned earlier, royalties and participations tax the production. Thereafter, revenues are allocated within the producing regions as a compensation for the exploitation of the resource. In this sense, non-producing regions do not benefit from

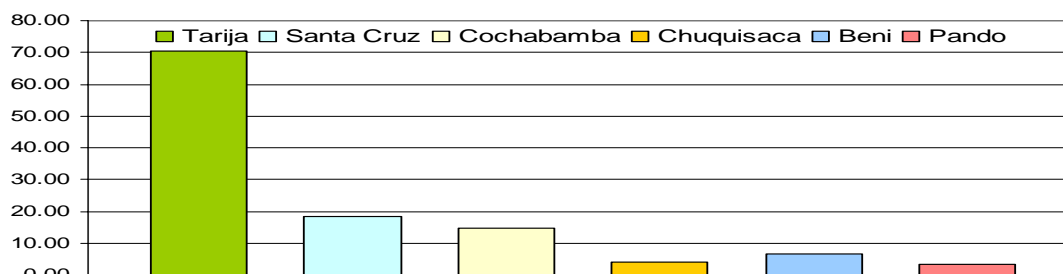
the hydrocarbon-production with the exception of Pando and Beni that are granted with one percent of the national production due to an historical agreement (Law 981).

Hydrocarbon royalties are the first cause of horizontal disequilibrium among departments. According to Law 1551, royalties are considered as departmental income; however, the reality is that the natural resource was granted by nature. However, in spite that every department in Bolivia has natural wealth, either minerals or forest resources if not hydrocarbons, there are regions that get a minimal source of income due to their low level of production.

From the total revenues on the upstream, the share of departmental royalties increased from 30 percent in 2000 to 65 percent in 2005, representing a significant expansion in monetary resources for producing departments. However, from the total royalties' revenues the major beneficiary is Tarija, with more than seven times that of Chuquisaca, which is another producing department. These figures show clearly the horizontal imbalances even between producing and non-producing departments only in terms of royalties (Figure 12).

In order to compensate for horizontal financial disequilibrium, Law 1551 established the creation of the FCD with funds provided by the IEHD. However, these funds must not exceed 10 percent of the total IEHD contributions. The FCD was created to compensate those departments where the national average departmental royalty per capita is greater than its own per capita royalty revenues. The compensation system of the FCD takes into account mining, timber and hydrocarbons royalties. The mechanism to balance the horizontal disequilibrium within departments is basically based on population criteria.

**Figure 12: Distribution of Royalties within Departments(1) (2006)(2)
in million of dollars**



Source: Data collected from Ministry of Hydrocarbons
 (1) Tarija, Santa Cruz, Cochabamba and Chuquisaca account for 11% of their production.
 Beni (2/3) and Pando (1/3) account for 1% of the national production.
 (2) Royalties are collected until June

Until October 2006, the total revenue collected from the IEHD was approximately \$206.42 million. Therefore, the FCD must not be more than \$20.64 million, 10 percent of its total, to balance any disparity caused by royalties. The total amount, however, needed to compensate for royalty-horizontal imbalances was 300 percent larger than the FCD's funds, \$75.82 million dollars. Consequently, we can observe that the FCD lacks capacity to achieve its main objective. Table 02 shows that in 2006 five departments needed to be compensated; among them, the hydrocarbon producing departments, with the exception of Tarija. The extraordinary amount of royalties going only to the department of Tarija uncovers the necessity to compensate not only non-hydrocarbon producing departments, but also the other three producing departments.

Table 02: FCD's Distribution System in dollars (1)

| Department | Population (2) | Hydrocarbon Royalties | Mining & other Royalties | total Royalties | National Factor (3) | Departmental Factor (4) | FCD's Transfer (5)(6) | Compensated Transfer | per capita |
|--------------|------------------|-----------------------|--------------------------|--------------------|---------------------|-------------------------|-----------------------|----------------------|------------|
| Chuquisaca | 531.522 | 4.088.339 | 2.289 | 4.090.628 | 18 | 8 | 5.720.635 | 9.811.263 | 18 |
| La Paz | 2.350.466 | | 3.494.249 | 3.494.249 | 18 | 1 | 39.892.552 | 43.386.801 | 18 |
| Cochabamba | 1.455.711 | 14.801.822 | 213.953 | 15.015.775 | 18 | 10 | 11.854.916 | 26.870.690 | 18 |
| Oruro | 391.870 | | 11.836.887 | 11.836.887 | 18 | 30 | -4.603.434 | | 30 |
| Potosí | 709.013 | | 18.517.419 | 18.517.419 | 18 | 26 | -5.429.884 | | 26 |
| Tarija | 391.226 | 70.546.078 | | 70.546.078 | 18 | 180 | -63.324.512 | | 180 |
| Santa Cruz | 2.029.471 | 18.400.375 | 804.453 | 19.204.828 | 18 | 9 | 18.256.788 | 37.461.616 | 18 |
| Beni | 362.521 | 6.535.532 | 57.764 | 6.593.297 | 18 | 18 | 98.409 | 6.691.706 | 18 |
| Pando | 52.525 | 3.267.776 | 167.242 | 3.435.018 | 18 | 65 | -2.465.469 | | 65 |
| Total | 8.274.325 | 117.639.923 | 35.094.256 | 152.734.179 | | | 75.823.299 | 124.222.076 | |

Source: Ministry of Finance, Fiscal Unit of Programming (UPF) and INE

(1) Estimations were made using the total IEHD-revenue until October of 2006 and according to Law 1654

(2) According to the National Census of 2001

(3) It is the sum of total royalties by department divided by national population

(4) It is the total departmental royalties divided by the departmental population

(5) It is the difference between national and departmental factor multiplied by the departmental population. It only applies if the difference is greater than zero (a positive value)

(6) The 10 percent of the IEHD barely have enough funds to compensate the hydrocarbon sector, but only three departments. This exercise does not take into account mining and timber royalties, which according to Law 1654 must be taken.

Total IEHD 206.424.614,54

10% IEHD 20.642.461,45 27%

Deficit -55.180.838,03 -73%

The IEHD

Prefecturas also receive transfers from the central government that account for 25 percent of the total IEHD contributions. The 25 percent of the IEHD's contributions is divided in two parts. 50 percent is distributed based on population criteria, dividing the departmental population by the national population, and the other 50 percent is distributed in equal parts to every one of the nine departments without any economic, population, or poverty criteria, but assuming that every region has similar characteristics.

Looking at the structure of the distribution system of the IEHD, it is noticeable that it causes the same problems of horizontal disequilibrium within departments. Even though one part of the distribution is taking part in solving the per capita imbalances, where every person gets the same revenues in every department, the second component of the distribution creates the same problems mentioned above. This transfer makes less populated departments get proportionally more resources than departments with significant population. For instance, Pando gets in about 13 times more per capita resources than La Paz, Santa Cruz and Cochabamba, the most populated departments.

Table 03: IEHD's Distribution System in dollars (1)

| Department | Population (2) | by Population | by Territory | IEHD's Transfer | per capita |
|--------------|---------------------|----------------------|----------------------|----------------------|------------|
| Chuquisaca | 531.522 | 1.657.525 | 2.867.009 | 4.524.534 | 9 |
| La Paz | 2.350.466 | 7.329.813 | 2.867.009 | 10.196.822 | 4 |
| Cochabamba | 1.455.711 | 4.539.563 | 2.867.009 | 7.406.572 | 5 |
| Oruro | 391.870 | 1.222.027 | 2.867.009 | 4.089.036 | 10 |
| Potosí | 709.013 | 2.211.022 | 2.867.009 | 5.078.031 | 7 |
| Tarija | 391.226 | 1.220.019 | 2.867.009 | 4.087.028 | 10 |
| Santa Cruz | 2.029.471 | 6.328.806 | 2.867.009 | 9.195.814 | 5 |
| Beni | 362.521 | 1.130.504 | 2.867.009 | 3.997.512 | 11 |
| Pando | 52.525 | 163.797 | 2.867.009 | 3.030.805 | 58 |
| Total | 8.274.325,00 | 25.803.076,82 | 25.803.076,82 | 51.606.153,64 | |

Source: Ministry of Finance, Fiscal Unit of Programming (UPF) and INE

(1) Estimations were made using the total IEHD-revenue until October of 2006 and according to Law 1654

(2) According to the National Census of 2001

Total IEHD 206.424.614,54

25% IEHD 51.606.153,64

Departmental Transfers of the IDH

According to Law 3058, the IDH has to be distributed through direct transfers from the central government to prefecturas, municipalities, public universities and indigenous groups. The distribution system of the IDH is complex in terms that is divided in four stages. The first stage distributes the IDH-revenues within producing, non-producing regions and the Nation's Treasury directly without any criteria but political.

On the second stage of distribution, the transfers are made within departments taking into account regional criteria within non-producing departments and production capacity within producing departments. Within the central government, the IDH-revenues allocate resources into four different funds; the Compensatory Fund for Municipalities and Universities (CFMU), Indigenous and Campesinos Fund, Internal Aid for National Development Fund and the Army and Police Department.

On the third stage, the IDH-revenues are distributed within prefecturas, municipalities and universities based again on political criteria. Finally, the fourth stage distributes the IDH-revenues within municipalities and universities, this time, based on population criteria.

Figure 13: The IDH Distribution System

| | First Stage | Second Stage | Third Stage | Fourth Stage |
|---|--|--|---|---------------------------------------|
| IDH's Transfers / S.D. 28223 reformed by S.D. 28421 | 12.50% to producing departmets according to its own production | Tarija Santa Cruz Chuquisaca Cochabamba | 34.48% | Municipalities (by population) |
| | | | 8.62% | Universities |
| | 31.25% non-producing departments based on region equity | Pando 6.25% Beni 6.25% La Paz 6.25% Oruro 6.25% Potosi 6.25% | 56.90% | Prefecturas |
| | | Indigenous and Campesinos Fund 5% | | |
| | 56.25% Nation's Treasury | Compensatory Fund for Municipalities and Universities 5% | La Paz 46.19% Santa Cruz 36.02% Cochabamba 17.79% | 80% Municipalities (by population) |
| | | National Development Fund 5% | | 20% Universities |
| | | Army Police | Annual Budget | |

Within the first and second stage of distribution, it can be observed in Table 04 that non-producing departments get more resources than the producing ones creating concerns among producing regions. In order to compensate for these disparities, Law 3058 stipulates the creation of an equalization formula funded by the Nation's Treasury. In addition, Law 3058 also stipulates the creation of the CFMU to compensate La Paz, Santa Cruz and Cochabamba due to their high population.

Once direct transfers and compensations are done, every department basically gets the same amount of IDH-revenues. However and even though the efforts made by the equalization formula, significant per capita inequalities persist. In other words, looking at the per capita transfer, the horizontal disparities among departments remain significantly enormous. For instance, Pando's population is 2.6 percent of La Paz's population, but La Paz receives only 2.2 percent of Pando's per capita resources. Furthermore, the three largest departments, La

Paz, Santa Cruz and Cochabamba, get by far fewer per capita resources than the other departments.

Table 04: IDH's Departmental Distribution System in dollars (1)

| Departments | Population (2) | IDH's Departmental Distribution System (2) | | | | per capita |
|--------------|------------------|--|-------------------|-------------------|----------------------|------------|
| | | Direct Transfer | Equalization | Compensatory Fund | Compensated Transfer | |
| Chuquisaca | 531.522 | 9.784.387 | 25.857.009 | | 35.641.397 | 67 |
| La Paz | 2.350.466 | 35.641.397 | | 5.508.120 | 41.149.517 | 18 |
| Cochabamba | 1.455.711 | 2.702.498 | 32.938.899 | 2.121.443 | 37.762.840 | 26 |
| Oruro | 391.870 | 35.641.397 | | | 35.641.397 | 91 |
| Potosí | 709.013 | 35.641.397 | | | 35.641.397 | 50 |
| Tarija | 391.226 | 46.632.784 | | | 46.632.784 | 119 |
| Santa Cruz | 2.029.471 | 12.163.124 | 23.478.273 | 4.295.356 | 39.936.753 | 20 |
| Beni | 362.521 | 35.641.397 | | | 35.641.397 | 98 |
| Pando | 52.525 | 35.641.397 | | | 35.641.397 | 679 |
| Total | 8.274.325 | 249.489.776 | 82.274.180 | 11.924.919 | 343.688.876 | |

Source: Ministry of Finance, Fiscal Unit of Programming (UPF), INE

(1) Estimations were made using the total IDH-revenue take at the well head until September of 2006 and according to Law 3058

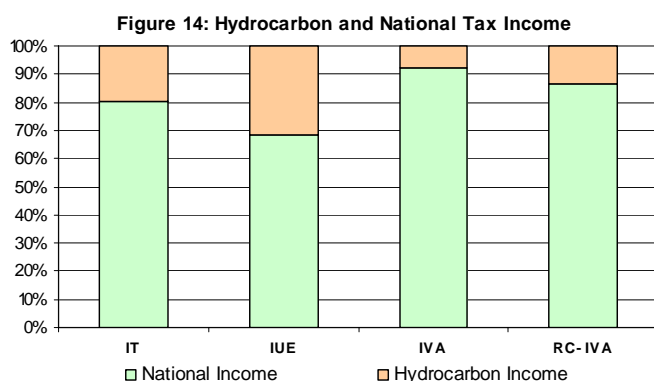
(2) According to the National Census of 2001

Total IDH 570.262.345,80

These figures show that the first and second stage of the IDH-revenue distribution is not created to reach, in an equitable manner, the needs of the poor population of the different regions of Bolivia. On the contrary, they have highlighted the need of restructuring the IDH-distribution system. Nonetheless, it is worth to draw attention to that the objective of the equalization formula is to compensate producing departments with fewer resources than non-producing ones under regional basis and not at the per capita level.

8.2. Municipal Distribution

Two main transfers allocate resources at the municipal level of governance: the tributary-revenue sharing/coparticipación tributaria (CT) and the third and fourth stages of the IDH-transfers. The CT is a common-bag of revenues funded by contributions of national taxes applied within the whole territory of Bolivia. As it was mentioned in the tributary system section, the national taxes that collect revenues from the hydrocarbon sector are IUE, IVA, RC-IVA and IT.



Source: Ministry of Finance, Fiscal Unit of Programming and SII

In 2005, revenues generated by the hydrocarbon sector in terms of national taxes accounted for 16 percent of the total national. The collection capacity of the hydrocarbon tributary system depends on two types of instruments, direct and indirect taxation. The IUE, a direct tax, represents the most significant contributor of the hydrocarbon sector because it taxes the net profits of the oil companies. In

2005, the hydrocarbon sector contributed with 32 percent of the IUE-national contribution. Therefore, as the hydrocarbon production increases, the oil and gas industry becomes more profitable and the state increases its revenue-take through the IUE. On the other hand, the other taxes are also important but their collection capacity depends on the contribution

capacity of the population that commercializes and consumes hydrocarbon products, either imported or national.

The distribution system of the CT benefits not only municipalities but also public universities. Municipalities receive 20 percent of the total revenues generated by national taxes. The 20 percent is distributed according to the number of inhabitants of each municipality. On the other hand, Universities account for 5 percent of the national tax income which is distributed according to the departmental population.

Municipal Transfers of the IDH

In terms of the IDH-revenues, 56.90 percent of the departmental resources go to prefecturas, 34.48 percent to municipalities and 8.62 percent to universities. In addition, municipalities and universities of La Paz, Santa Cruz and Cochabamba get additional funds from the Compensatory Fund for Municipalities and Universities due to their high population. From the CFMU funds, the department of La Paz is the beneficiary of 46.19 percent; Santa Cruz gets 36.02 percent and Cochabamba accounts for 17.79 percent. The structure of these distribution does not respond to social criteria but political and increases the inequalities at the departmental level of governance.

Within municipalities, the IDH-revenues are distributed according to population criteria, in this case taking into account the population of each municipality. From Table 05, we can observe that before the compensation for municipalities and universities of high populated departments, every department gets the same amount of funds for their respective municipalities except Tarija that receives more resources. However and even though the apparent equity among municipalities and the afore-mentioned compensation, it can be inferred that the IDH-transfer system causes serious disparities in terms of per capita distribution due to several factors like population, different number of municipalities within departments and different levels of poverty among municipalities and departments.

Table 05: IDH's Municipal Distribution System in dollars (1)

| Departments | Prefecturas | Municipalities | Universities | Municipal's CFMU | University's CFMU | Total Municipalities | Total Universities |
|--------------|--------------------|--------------------|-------------------|------------------|-------------------|----------------------|--------------------|
| Chuquisaca | 20.279.955 | 12.289.154 | 3.072.288 | | | 12.289.154 | 3.072.288 |
| La Paz | 20.279.955 | 12.289.154 | 3.072.288 | 4.406.496 | 1.101.624 | 16.695.650 | 4.173.912 |
| Cochabamba | 20.279.955 | 12.289.154 | 3.072.288 | 1.697.155 | 424.289 | 13.986.308 | 3.496.577 |
| Oruro | 20.279.955 | 12.289.154 | 3.072.288 | | | 12.289.154 | 3.072.288 |
| Potosi | 20.279.955 | 12.289.154 | 3.072.288 | | | 12.289.154 | 3.072.288 |
| Tarija | 26.534.054 | 16.078.984 | 4.019.746 | | | 16.078.984 | 4.019.746 |
| Santa Cruz | 20.279.955 | 12.289.154 | 3.072.288 | 3.436.285 | 859.071 | 15.725.438 | 3.931.360 |
| Beni | 20.279.955 | 12.289.154 | 3.072.288 | | | 12.289.154 | 3.072.288 |
| Pando | 20.279.955 | 12.289.154 | 3.072.288 | | | 12.289.154 | 3.072.288 |
| Total | 188.773.691 | 114.392.212 | 28.598.053 | 9.539.936 | 2.384.984 | 123.932.148 | 30.983.037 |

Source: Ministry of Finance, Fiscal Unit of Programming (UPF), INE

(1) Estimations were made using the total IDH-revenue take at the well head until September of 2006 and according to Law 3058
Total IDH 570.262.345,80

9. Analysis and Discussion

According to what we observed earlier, it seems that natural resources like hydrocarbons became important for economic growth in terms of development especially for countries like Bolivia that needs important sources of revenues. However, it is very important to keep in mind the historical evidence that shows that resource-poor countries developed much better than resource-rich countries (Sachs and Warner, 1997). For instance, there are resource-poor economies like Japan and the Switzerland that performs better compared with other resource-rich countries like Bolivia. Researchers have found empirical evidence suggesting that there is a negative correlation between abundance of natural resources and economic growth (Gylfason, 2000; Sachs and Warner, 1997). Gylfason implies that the reason behind these phenomena is the false sense of security and over confidence in their natural capital that allows economies of resource-rich states to operate with large margin of error when taking advantage of their resources.

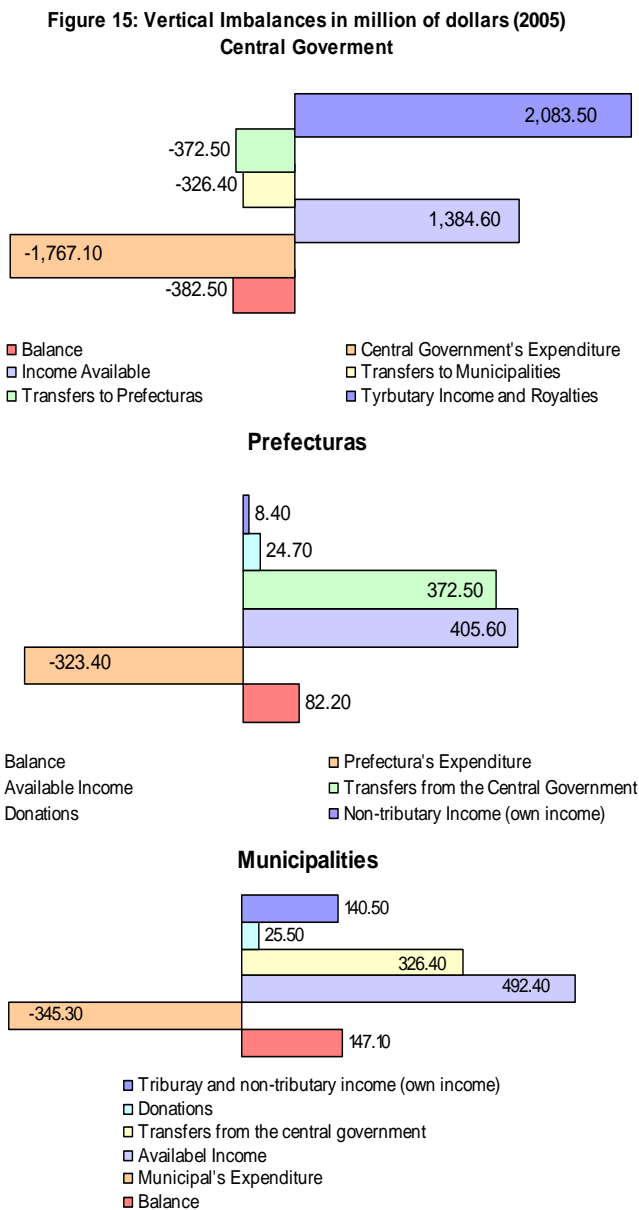
Further more; Sachs and Warner (1999) state that the fluctuated market of the energy sector jeopardized the source of income and the economic stability of resource-rich countries that rely on these commodities. For instance, Andersen and Farris (2002) suggest that there are two main external problems that explain the negative correlation between natural resources and growth: volatile prices and Dutch disease. The first one, volatile prices, explain that prices of such commodities, primary products, tend to be very fluctuating in the international market than manufacture goods. This situation of uncertainty may lead with a non reliable source of income for the state due to the ups and downs of these prices in which primary products are dependent on; and therefore the economic stability of the country. As an example, the collapse of the Bolivian economy in the mid 1980's when the tin market collapsed leaving behind a damaged country.

The second one, Dutch disease, is well know for its characteristic of shrinking other productive sector in the country. Due to the enormous amount of foreign currency flowing into the country, the country's currency tends to appreciate its exchange rate. This situation rest competitiveness to other export sectors in the way that a higher price for its products, fewer incentives for buyers and therefore a decrease of its exports. In other words, if international prices dropped and in addition the alternative export sectors are weak, nothing is left for the country to sustain its economy. In this topic, using a CGE model of the Bolivian economy, Lykke E. Andersen (2006) has studied the distributional impact of natural gas resources and the possible changes in the Bolivian economy due to the increase of natural gas exports focusing on the changes in income distribution between different types of households and economic active sectors.

Later studies show positive correlation between natural resources abundance and corruption which represent an obstacle for growth; especially if there is a large presence of weak institution at the government level (Leite and Weidmann, 1999). Ross (2001) corroborates Leite and Weidmann and adds to the statement that social conflicts are likely to happen if the resource-rich country has weak government institutions and high poverty rates. According to Herbst (2001), the reasons behind social unrest in resource-rich states rely on two scenarios: the social uncertainty of the revenue distribution and the social uncertainty of the equitable

distribution of the benefits through the country's regions. Also implied is the increasing number of competing groups that fight for the natural resource rents and benefits undermining the potential development of the state.

Homer-Dixon (2004, p. 290) corroborates these findings by suggesting that the imbalance of natural resources in the form of abundance or scarcity is associated with conflicts among regions and countries; however, there are other significant contributing variables like jurisdictional limits within the country (departments, states or provinces) and administrative responsibilities as suggested by Cordonier et.al. (2002, p. 71-72) in particular inequitable access to natural goods for the majority of the beneficiaries that are often source of uncertainty and friction.



Source: Marco Zapata Cusicanqui, RAF (2005)

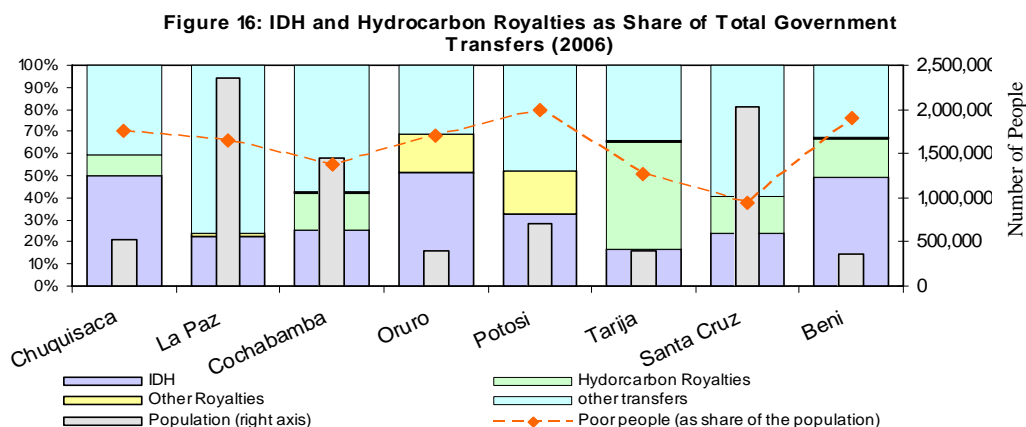
Therefore, the government represents a crucial actor in terms of administration and management of its domestic production that in developing countries generally relies on natural resources. The resources allocation and decentralization process is not only a matter of more decision-making power by local governments, but also about having the means to activate the economy and efficiently deliver goods and services that are under local governments' jurisdiction. Decentralization is a transfer process of competencies according to the economic and financial capacity of local governments having significant repercussions on the country's overall social and economic welfare. In this sense, the decentralization efforts are in generally focused on establishing incentives for improves services, improving the welfare of the population and as a poverty reduction strategy.

One important aspect of decentralization is allowing local governments to be part of their own development process supported by the central government. Therefore, reducing the dependency on government transfers becomes important not only for the decentralization itself but also to minimize the risk of local governments that rely on fluctuating income.

Currently, 92 percent of the prefecturas' revenues come from government transfers. The municipal dependency is also significant with 66 percent of their revenues relying on government's transfers. Nonetheless, it is noticeable that the legal authority that municipalities have to collect and administrate property and automobile taxes represent a significant impact reducing its dependency on central transfers. However, it is also very noticeable that without transfers, prefecturas and municipalities would have serious vertical fiscal imbalances. In other words, the expenditure levels of local governments by far exceed their income generation capacity. (Figure 15)

The stability of the transfer system correlates with the economic cycle of the country. Therefore, it becomes necessary to create policies that allow having continued flows of income regardless of economic booms due to, for instance, natural resources like hydrocarbons in Bolivia. The hydrocarbon sector in Bolivia plays a significant role in the country because the sector's significant capacity to generate revenues for the government.

In terms of the hydrocarbon revenues and specifically the IDH, five departments are highly dependent on these funds. For instance, in Chuquisaca, a hydrocarbon producing department, 50 percent of their transfers are from the IDH; while 70 percent of its population lives in poverty. The same situation we have in Oruro and Beni. On the other hand, there are other departments with same levels of poverty, but fewer resources like La Paz, Potosi and even Cochabamba. However, it is important to take into account that La Paz holds almost 2.5 million of inhabitants where almost 70 percent of them live in poverty (1.5 million of people); almost the entire population of Cochabamba. While Beni holds less than 362 thousands of people with more than 200 thousands living in poverty.



Source: General Control Office of the Republic, Ministry of Finance, Ministry of Hydrocarbons
 (1) Data from Pando was not available for 2006

This situation of transfer dependency jeopardizes the financial sustainability of those departments in the medium and long term. These departments are not only depending on the IDH-transfers but in a large extent on the hydrocarbon production, which highly depends on foreign investment. In addition, the lack of poverty criteria in the transfer system of revenues has the potential of undermine the country's efforts of equity and poverty reduction. Therefore, we can conclude that the central government's transfers, especially the

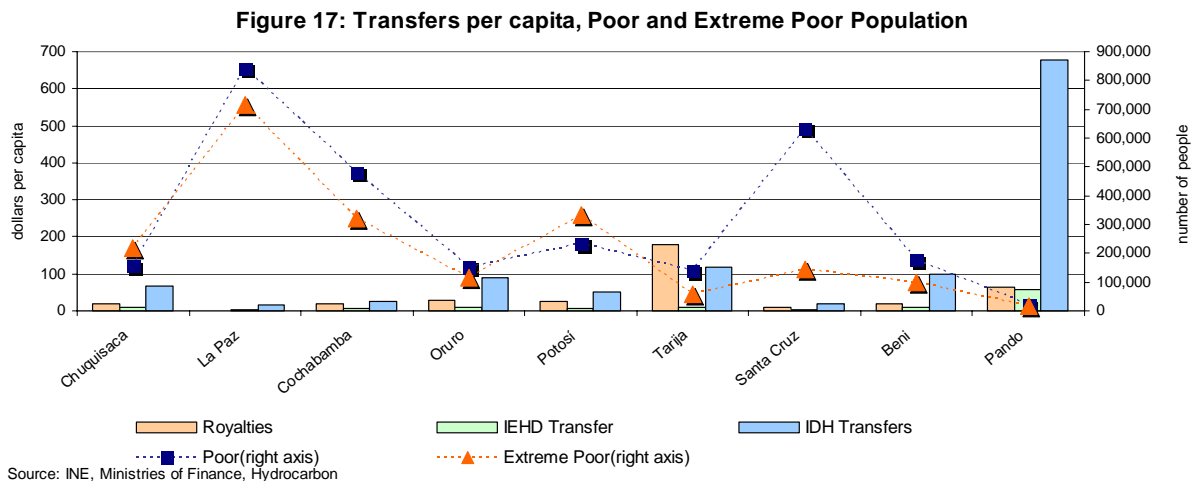
hydrocarbon's transfers, do not only aggravate vertical and horizontal imbalances but also generate severe transfer dependency.

On the other hand, the reforms of 2005 and the introduction of the IDH also implied a one step ahead on the Bolivian process to decentralization. Law 3058 allows local government to carry out with more public expenditures, as the revenue-sector allocation is very broad, liberating in this way the central government from this pressure. However, it is very important to strengthen sector reforms by a re-definition of the distribution system of the hydrocarbon revenues, especially the IDH, and even more important to strengthen the administrative capacity of local governments to manage such amounts of resources.

With the creation of the IDH, Bolivia generates significant amounts of resources where the direct beneficiaries are prefecturas and municipalities. In this sense, these resources have to be channeled through policies to enhance democracy and the decentralization process within local governments promoting poverty alleviation to set the basis for sustainable economic growth.

These transfers should in first place take into account the different levels of development and poverty of each region and sub region in the country. In addition, it should take into account the different levels and degrees of governance, administrative, income-generation and spending capacity of each local government. Central governments are in a significant extent responsible for the overall wellbeing of the country; therefore, transfers should be an instrument for central governments to close any disparity, support and encourage local governments for greater autonomy and participation of their own economic and social development.

Consequently, it is recommendable to compare the level of central transfers with the level of poverty of each region to see the magnitude of the imbalances created. Figure 17, shows that the design of the transfer system of the hydrocarbon sector does not recognize these differences in size and needs and creates significant per capita inequalities.



Royalties are distributed under regional criteria based on producing departments. For instance, Tarija gets the majority of the benefits. This situation, however, could be justified by the fact that the natural resource is in their region. Nevertheless, it is also arguable the fact that they did not do anything to get it, the resource was already there, and even though Law 1551 has assigned royalties as their source of income it is also stated in the Bolivian Constitution (CPE) that natural resources belong to the state and therefore to Bolivians (Article 136).

In order to balance this horizontal disparity the FCD¹⁷, which uses funds from the IEHD, was created so every region could reach the national average per capita royalty and get compensated for the random distribution of natural wealth. Therefore, it is by definition a per capita equalizer transfer that currently has not accomplished its primary objective. Currently, the FCD only has the capacity to compensate 20 percent of the royalty imbalances. Among the reasons that explain the FCD's lack of capacity is the incoherent criterion of using 10 percent of other completely different source of resources, the IEHD, which simultaneously holds an active subsidize policy that restricts its tax-capacity of collection.

Finally, the major concerns in terms of the hydrocarbon-transfer system rely on the IDH transfers. These transfers have created such horizontal imbalances that the most populated regions receive in about 40 times less per capita resources than the less populated ones. For instance, Pando and Tarija hold 1 and 5 percent of the total population respectively; however, they receive such extraordinary amount of resources compared with La Paz and Santa Cruz that hold 28 and 25 percent of the country's population. Even so, this situation could be justified only for Santa Cruz if we look at the share of poor and extremely poor people by region. Santa Cruz has the lowest rates of poverty with less than 10 percent of people living in extreme poverty and 31 percent in poverty. However, it cannot be justified for La Paz or the rest of the departments where the percentage of people living in poverty is above 60 percent; and even more in cases like Potosi where almost 80 percent of its population live in poverty (more than 50 percent in extreme poverty). Therefore, it is clear that the IDH transfer is aggravating the inequality among regions.

Given such disparities, levels of poverty and population size by region, it becomes important to redefine the transfer system of revenues, in particular the hydrocarbon revenues that has significant representation on the overall economy of the country. In this approach, the following exercise pretends to highlight and suggest likely reforms but not definitive changes to the transfer regime of the hydrocarbon sector. Furthermore, the main objective of the following exercise is to open the dialogue and shape the policy debate for possible interventions.

¹⁷ Do not forget that the FCD has to compensate the disparities created by timber, mining and also hydrocarbon activities.

Re-structuring the Hydrocarbon Distribution System

The distribution system of the hydrocarbon sector mainly consists on royalties, the compensatory formula (FCD), 25 percent of the IEHD, and the IDH. In this exercise, the CT is not taking in to account because it compromises different other national taxes that are not applied to the hydrocarbon sector and their analysis should be done separately in future studies.

The first possible reform should re-structure royalties and the FCD. First of all, the incoherent criterion of consume funds from other totally different source like the IEHD to compensate horizontal-royalty imbalances creates a vicious and unnecessary additional fiscal pressure to the Nation's Treasury. This criterion creates an inefficient system to fund the FCD with resources coming from another tax-instrument that does not correlates with royalties and their capacity to generate income. Royalties tax production and constitute an unconditional source of income for producing regions. This aspect certainly prevents its uses out side of the producing region that might be socially or economically more beneficial for not so lucky regions or the whole nation. Furthermore, royalties and the IEHD do not correlate even within their jurisdiction. The IEHD is paid by the whole populations to compensate inequalities created by royalties that only benefit producing regions rather than the rest of the nation. In one sense, this incoherence makes Bolivians from non-producing regions pay to compensate other producing regions. Consequently, this aspect does not create incentives for fiscal accountability and responsible public spending due to the fact that royalties and the FCD are basically granted.

However, because royalties are historically given to producing regions; therefore, it is not viable or even desirable to totally drain these funds from their beneficiaries due to possible internal concerns and conflicts. Nonetheless, what indeed is possible, and in some extent desirable, should be to use royalty resources to compensate the disequilibrium that they themselves are creating. For instance, if a department produces more than 50 percent of the national production of a specific resource, for instance Tarija in the case of natural gas, the difference should be given to compensate for horizontal inequalities in terms of royalties. In this way, as production increases, the FCD also does. In addition, specifically speaking in terms of the hydrocarbon sector, the 6 percent participation that goes to the Nation's Treasury should be also used to fund the FCD under the same idea.

In this manner, the FCD does not rely on another source of resources that does not have any correlation with royalties and production. Moreover, producing regions would have more incentives for fiscal accountability and efficient spending because they will have to give away part of their income that once was completely granted. In this aspect, in 2006, the total amount collected by the IEHD would have been, entirely, at disposition of the central government. Only 25 percent of it would have been transferred to prefecturas as it is stated in Law 1654; therefore, 75 percent would have remained in the Nation's Treasury for central government expenditures.

Within these changes, Tarija is the main player in these reforms. Tarija is the only producing region that accounted for more than 50 percent of the national hydrocarbon production in

2006, approximately \$641 millions (65%). Therefore, Tarija under these terms would have to give up around 15 percent of its royalties. The second main player in this alternative is the central government. They would have to accept to use its 6-percent share of hydrocarbon production to fund the FCD in order to balance the inequalities created by royalties.

In this aspect, Table 06 shows that the government's take in 2006 was approximately \$421 millions including the 6-percent participation of the central government after have transferred 35 percent of the IEHD and 60 percent of the IDH. With the alternative mentioned, however, the government's take for the same year, 2006, would have accounted for 75 percent of the IEHD and 50 percent of the IDH. Therefore, the total government's take would have been \$439 millions, 4 percent more than in current situation. Given these reforms, the FCD would have accounted, in 2006, with the necessary funds to compensate the inequalities created by the royalty system. In the same manner, the rest of the departments would have benefited from the compensation. However, it is very important that departments, in this case Tarija, accept a shortfall in revenues from royalties due to the modifications in order to benefit the rest of the regions and balance the horizontal disparities.

Table 06: Central Government's Share of IEHD, IDH and Royalties in dollars (2006)

| Transfers | Total Revenue | Government Take | |
|--------------|-----------------------|-----------------------|-----------------------|
| | | Current (1) | Alternative (2) |
| Total IEHD | 206,424,614.54 | 134,175,999.45 | 154,818,460.91 |
| Total IDH | 570,262,345.80 | 228,104,938.32 | 285,131,172.90 |
| 6% Royalties | 58,819,971.27 | 58,819,971.27 | |
| Total | 835,506,931.62 | 421,100,909.05 | 439,949,633.81 |

Source: Estimations were done with data from the Ministry of Hydrocarbon and Finance

(1) 10% and 25% of the IEHD are direct transfers. The central government keeps 65% of the IEHD

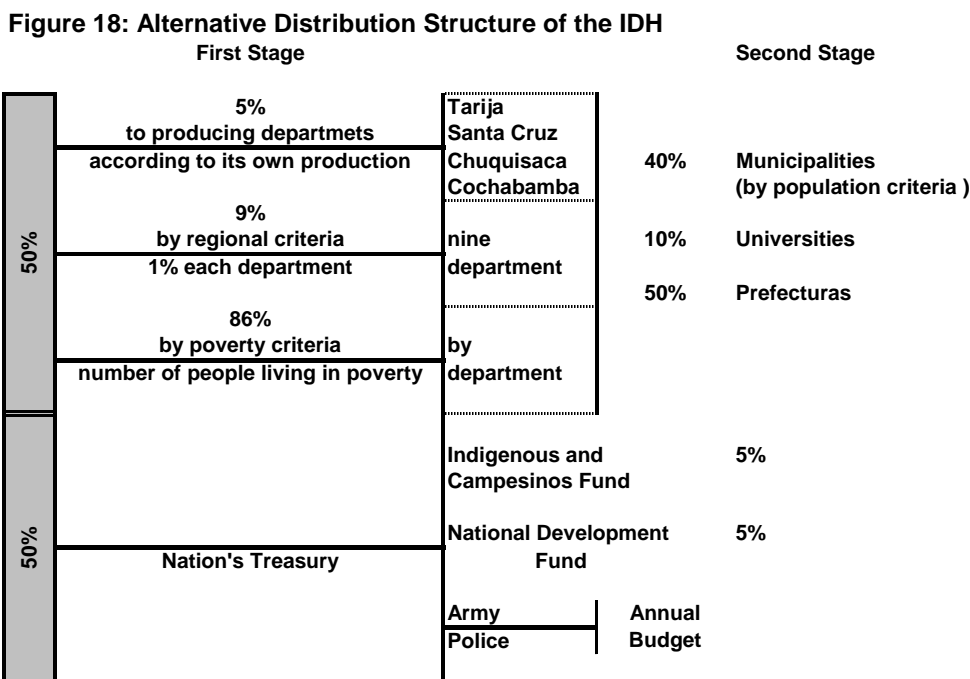
(2) The alternative suggests that only 25% of the IEHD should be a transfer; therefore, the central government would keep 75% of the IEHD

The selection of an appropriate distribution system of revenues in terms of central transfers is challenging due to the fact that transfers often have several objectives and in some cases very inconsistent. However, there are three primary objectives to take into account when transfers are created; correct vertical and horizontal imbalances and encourage and create incentives for local governments for a better spending program. That in mind, it is recommendable to recognize differences among departments in terms of regions, population and especially the poverty level of the country in order to make sound public policies on behalf of the population. For instance, in 2001 Law 2235 was created to establish mechanisms to regulate the distribution of the Highly Indebted Poor Countries (HIPC) funds under poverty criteria and vertical balance. The HIPC funds are the only Bolivian transfer that account for poverty criteria to allocate resources within regions. That said and in light of this experience, it is possible to emulate such criteria using the IDH-revenues that represent an important source of resources as we saw earlier.

The IDH is a special instrument that taxes the hydrocarbon production. It was created after several protest and concerns from the population and supported by the Energy Referendum of 2004 in order to increase the government's take of the sector's revenues to not less than 50

percent of the production complementing the royalty regime. Within these circumstances, it is recommended that this transfer should be used by the central government to support and encourage local governments to accomplish their poverty reduction agenda and satisfy the needs of the most vulnerable share of the population.

Therefore, it is strongly recommendable that the IDH-transfer should be distributed taking into account poverty criteria given the circumstances of its creation and high level of poverty in the country. However, because the IDH represents almost 50 percent of the total hydrocarbon revenues, a significant source of resources, it is also recommendable to maintain regional and production criteria for its distribution, in order to minimize concerns and conflicts among regions, especially producing regions. That said, one possibility of restructuring the IDH distribution system is explained in the following figure. The distribution follows three criteria; production and regional criteria due to the importance of the IDH. The third criterion and most significant is poverty criteria to benefit the poorest areas of the country.



The poverty criteria used in this exercise to estimate poverty incidence is the method of the Unmet Basic Needs (UBN), which is the same used in the HIPC funds. The UBN method is based primarily on deprivation indices to assessing situations of absolute poverty. It combines four significant groups: i) quality of housing in terms of construction materials of floors, walls and ceilings and overcrowded rooms, ii) Services like water supply, sanitation, electricity and cooking energy consumption, iii) Education in term of years, school attendance and illiteracy and iv) Health coverage, formal and informal, and social security.

The formula used in the distribution of the departmental 50 percent IDH equation is:

$$MunicipalityX_n = 40\% D_n \left[5\% PD_n + 1\% ED_n + 86\% * \frac{D_n PP}{NPP} \right] \left[\frac{M_x PD_n}{D_n P} \right]$$

Where:

D_n = Department n

PD_n = Producing Department n by production

ED_n = each one of the nine departments

$D_n PP$ = Department n Poor Population

NPP = National Poor Population

$M_x PD_n$ = Municipal Population of Department n

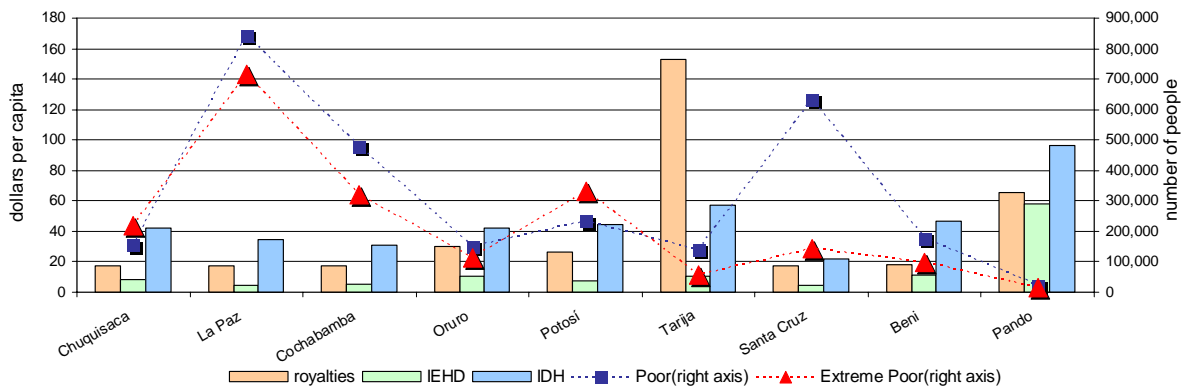
$D_n P$ = Population of Departmental n

X_n = Municipality X from department n

n = number of the department, from 1 to 9

Given these possible changes in the distribution system of the hydrocarbon sector (royalties, FCD and specially the IDH), Figure 19, shows the results of the hypothetical reforms that were estimated based on preliminary data of the total hydrocarbon revenues collected in 2006.

Figure 19: Transfers per capita, Poor and Extreme Poor Population (Alternative)



Source: Estimation were done with data from INE, Ministries of Finance and Hydrocarbon

With these changes we can observe a more significant per capita balance between departments. However, it is also visible that Pando and Tarija still receiving significant resources compared with the rest of the departments. This situation is due to the extraordinary amount of royalty resources of Tarija and the low level of population in Pando. Nonetheless, the per capita horizontal imbalances within departments are significantly smoothed compared with current situation.

The department most affected by these changes is Pando with a shortfall in revenues of almost 86 percent, which actually might represent a significant loss for the department from \$35 to \$5 million approximately. Beni, Tarija and Oruro would have to accept a shortfall of almost 50 percent; and Potosí and Chuquisaca, 12 and 37 percent respectively to benefit La Paz, Cochabamba and Santa Cruz with 97, 20 and 11 percent of windfall.

However, despite of that the aggregated result of this exercise might look radical and unfavorable for some regions, it is important to keep in main that exist significant differences

in population among departments. As mentioned earlier, the total poor population of only the department of La Paz is comparable with the total population of Cochabamba. Furthermore, the total population of Pando represents less than 4 percent of the total poor population of La Paz, 52,525 compared to 1,556,008 respectively. For that reason, it is evident that the current system of distribution does not take poverty variables, not even population variables, in its equation at the early stages, which creates a discriminatory sense of distribution among region where few people of some region gets the most of the hydrocarbon benefits as compared with other regions with more than 90 percent more poor population.

Viability, Opportunities and Conditions for Reforms

The situation of the hydrocarbon sector in Bolivia is not yet consolidated. Since the sector reforms were enacted in 2005, the new version of the hydrocarbon law (Law 3058) and the nationalization decree of 2006, the government is still on a very delicate process to consolidate and regulate the sector's activities in terms of production and the distribution system of revenues. This situation gives the government a significant advantage to still adjusting some of the topics explained earlier. In addition, Bolivia is currently going through a process of re-writing the national constitution.

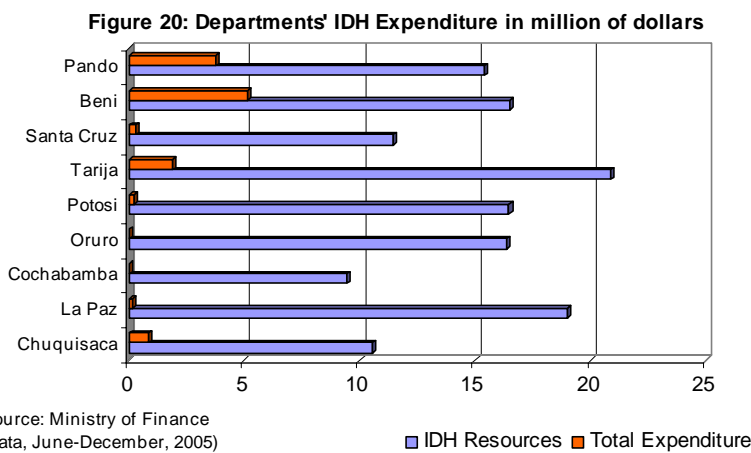
As mentioned earlier, the CPE states that natural resources belong to the state and therefore to their citizens; in addition, it stipulates that the hydrocarbon reserves, in any stage of condition (in production or not, under or on the surface), belong to the state (Article 136 and 139). It also complements by saying that the state shall classify the departmental, municipal and central income by law (Article 146). Within this political, social and legal context, the opportunities of the country to success on this purpose are significantly high.

However, it is very important to clarify that the new constitution should be about rights, values and democratic processes, but in any case, about public policies. In other words, the constitution is the blueprint of societies with fundamental values detailing the essence of the relationships between citizens and the state. It shall call and support equal opportunity for every citizen, and should be based in shared values within the society (King, 2006). In addition, the new constitution shall describe in detail the role of the government and its institutions, in other words, the government's responsibility to their citizens. The new constitution should set the basis for deeper decentralization process within local governments to allow them to be part of their own development for a better and more efficient way of delivering goods and services directly to the population.

The Bolivian legislation stipulates that the central government is the entity in charge of making sector reforms that affect the macro stability of the country. However, in light of the level of poverty of the country and the current democratic process of Bolivia, writing a new constitution, these significant changes to the hydrocarbon distribution system that affect not only producing but also non-producing regions, should be approved by the nation as whole, the population. The democratic process in which Bolivia is currently placed significantly empowers the citizens. Therefore, the opportunity to set the basis for a fair society establishing the framework for a unified country under equal opportunities and inclusion is certainly there.

That said, it is important to point out that the constitution's opportunity is critical to strengthen the Bolivian values and willingness to act in accordance with the sacrifices needed to form a compact society pursuing the welfare of the whole nation, but not to write public policies or changes like the ones described above. Bolivia's current conjuncture, the new socialist government, the extraordinary hydrocarbon revenues and the new constitution, represent a one-chance opportunity for the country to set the basis of a new nation.

In terms of the IDH, there are two important aspects to take into account for the success of the reforms. First, as mentioned before, departments have to accept a shortfall in revenues from the IDH. Otherwise, without this recognition on behalf of the others departments, it is virtually impossible balance the significant horizontal inequality.



In addition, according to the the Ministry of Finance, in 2005, prefecturas and municipalities showed an enormous surplus in their IDH-accounts (Figure 20), which represent an extraordinary situation in case that it meant that they had an impeccable spending program. However and sadly, it does not mean that. The reality is that prefecturas

and municipalities have a significant limited administrative and expenditure capacity due to, primarily, the lack of technical capacity. Table 07, shows the objective and sector allocation of each central transfer to local governments. From this table we can conclude that the transfer of competencies and responsibilities are often too broad to accomplish for small and medium size municipalities that more often represent a significant challenge even for large municipalities like La Paz and Santa Cruz.

This situation calls for an immediate respond of the central government in terms of investment in capacity building before let small local governments administrate significant amount of resources. Otherwise, the situation could turn into a high level of corruption within local governments. For instance, Tarija with 5 percent of the Bolivian population and 11 municipalities has accumulated more than \$20 million in its account. In the contrary, La Paz with almost 25 percent of the total population and 80 municipalities has accumulated less than \$20 million.

However, this surplus in IDH funds can be favorable for the success of the distribution system reforms due to the enormous amounts of resources that remain in prefecturas and municipalities' accounts. This surplus situation certainly smoothes the transition process of re-structuring the transfer system of the IDH. Consequently the financial impact would be minimal. In addition, from this perspective, as local governments are increasing their IDH-

revenues in their banking accounts, prefecturas and municipalities do not experience any revenue loss through the reforms.

That said, it is conclusive that exist favorable opportunities to introduce the necessary reforms to improve the transfer regime of the hydrocarbon sector for a better and more equitable distribution of the oil and gas revenues. However, it is also recommendable to analyze other alternatives and study the best approach to implement the reforms. A gradual implementation could be important for technical, and even more important, for political reasons due to the necessity of some regions to accept a shortfall on their income as well as the central government.

There is a remarkable lack of clear policies in terms of energy, economic and social development in the hydrocarbon sector's tax distribution system in Bolivia. This situation is creating significant horizontal disparities among departments and municipalities where the latter represents the most important level of governance for strategic development and poverty reduction efforts since the decentralization process of 1994.

The energy sector, in Bolivian, plays a critical role in the country because it is intricately woven with not only production and consumption of energy but also with access to resources, level of poverty, social, economic, political and environmental issues. As mentioned in the historical background section, the Bolivian hydrocarbon sector went through three nationalizations since its conception. Its legislation was reformed several times without significant changes on the most vulnerable population of Bolivia, the poor. The sector was and is also considered a strategic political instrument to request access to the Pacific Ocean with Chile. Furthermore, with the global increase in oil prices, the current nationalization efforts of Bolivia and the increasing revenues from the sector, the country has an important opportunity to bridge the connections between energy and development.

Overall, since the point of view of development and in light of the Bolivian experience and poverty level, the benefits of the energy sector at least in the developing world, no longer should be consider as a result of economic development but as a mechanism to increase the capacity of developing countries to promote social welfare and economic growth and as a definite driven of development through accountable and sound public policies.

10. Conclusions

The analysis of the Bolivian hydrocarbon sector from historical, social and economic perspectives shows that without doubts, Bolivia highly depends on the revenues from the sector. In addition, there are touchable arguments that justify the significant role of the sector in the country, among them the conflict with Paraguay, the use of the sector as potential instrument of negotiation to recover sovereignty and access to the Pacific Ocean, the geopolitical situation that place Bolivia as an important player in a possible energy integration as the holder of the second largest reserves of natural gas in the region and the sever degree of poverty in the country that makes Bolivia significantly needed for resources.

The report concludes that the nationalization of the hydrocarbon sector was indeed a necessary measure that had significant reasons for the country in order to reverse the unfavorable share of revenues that progressively declined from almost 50 percent to 18 percent of the production. It is interesting to reflect how for ten years former governments and international financial institutions tried to justify that unfavorable situation by promising that foreign investment in the sector, over any other measure, would benefit the country.

Nonetheless, it is important to point out that certainly were significant efforts and measures to decentralize and encourage for more popular participation in the decision-making process of governance. However, what is contradictory is the fact that the privatization of the oil and gas sector allowed transnational companies to take advantage of the non-renewable resource of the country in the sense that undeniably hydrocarbon reserves and production enormously increased but the government's share of the revenues significantly decreased in the same period of time. Therefore, we can assume that without the nationalization the figure would continuously deteriorate as production will eventually decline as companies will drain the non-renewable resource (transnational oil companies accounted for 82 percent of the production whereas the government accounted for 18 percent in 2005).

In this aspect, one conclusion is that in fact, the country decreased its share of the hydrocarbon revenues. This asseveration certainly weakens the argument that the country always had more than 18 percent of revenues taking into account however direct and indirect taxes. In order to analyze the complex tributary system of the sector, it is important to define the jurisdiction of direct and indirect taxes, profit and production taxes. In this aspect, royalties as the only mechanism that taxes production from 1996 to 2005 certainly decreased the government's take to 18 percent.

Therefore, one of the main conclusions that can be drawn from this report is that the role of the government is vital for the success of any sector reform chosen by developing countries. In this aspect, if governments lack of transparent and strong institutions to regulate, rule and administrate the variety of agreements and contracts of any sector reform, the most affected will not be governments, political parties or Private Corporation but the population, and even worst, the most vulnerable, the poor. Therefore, the discussion should be directed to which system is better for the welfare of the population.

Moreover, another conclusion is that to allow the privatization process and maintain the same amount of income, at least the first years of implementing the reforms, the tax burden was purposely shifted from oil companies to consumers, Bolivians. This measure was implemented as a mechanism to attract foreign direct investment to the sector. With the classification of existing and new hydrocarbons, former government reduced the companies' tax burden; and with the creation of the IEHD, the government shifted that responsibility to the population. In this manner, since 1996, the Bolivian population has financed the privatization process of the oil and gas sector without seeing the benefits.

In terms of resource allocation, the report also concludes that the distribution system of the hydrocarbon revenues is not evenly distributed within the country's regions. The current system of revenue allocation (specially the IDH) creates significant per capita inequalities within regions (\$16 dollars per capita in La Paz vs. \$600 dollars per capita in Pando). In addition, the current distribution system which is based on political criteria with some extent of regional notion of fairness discriminates the allocation of resources without taking into account any poverty criteria. In such poor country like Bolivia the lack of poverty criteria in the distribution system of such significant resources makes 1.5 million of poor people from La Paz get fewer resources than almost 300 thousand poor people from Pando in terms of per capita distribution.

Despite of the government's efforts to equalize the enormous horizontal disequilibrium created by royalties with the FCD, the incoherent criterion of using 10 percent of other completely different source of resources, the IEHD, which simultaneously holds an active subsidize policy that restricts its tax-capacity of collection creates an inefficient use of resources and an unnecessary fiscal pressure to the Nation's Treasury. For this reason, we believe that is highly recommendable to fund the FCD with sources that come from royalties rather than from another tax instrument that does not correlates with production. For instance, the FCD could be funded by the 6 percent of the government's royalty. In addition, if one department holds more than 50 percent of the total national production like Tarija, the difference should be used to fund the FCD. Given these changes, the FCD would correlate with production. Therefore, if production and royalties increase, the FCD would do so and have the capacity to compensate for royalty imbalances.

Additionally, the most important instruments of taxation, royalties and IDH, exacerbate the regional dependency on central transfers that depends on exhaustible and unstable hydrocarbon production (92 percent of the prefecturas' revenues and 66 percent of the municipalities' revenues come from government transfers). The report also conclude that the decentralization process of the country has several weaknesses in terms that it does not allow local governments to create their own tributary policies and generate their own income, with exception of municipalities that in some extent can administrate and collect two regional taxes defined by the central government.

However, this transfer dependency certainly jeopardize the financial stability of local governments, does not offer any incentive for efficient use of resources and creates the basis for corruption nucleus within local government that certainly knows that every year will get those transfers without any effort.

These transfers should in first place take into account the different levels of development and poverty of each region and sub region in the country. In addition, they should take into account the different levels and degrees of governance, administrative, income-generation and spending capacity of each local government. Central governments are in a significant extent responsible for the overall wellbeing of the country; therefore, transfers should be an instrument for central governments to close any disparity, support and encourage local governments for greater autonomy and participation of their own economic and social development.

One important aspect of decentralization is allowing local governments to be part of their own development process supported by the central government. Therefore, reducing the dependency on government transfers becomes important not only for the decentralization itself but also to minimize the risk of local governments that rely on fluctuating income like hydrocarbon production.

Table 07: The Hydrocarbon Revenue Transfer Regime

| Type of Transfer | Source of Resource | Recipient | Objective | Distribution Criteria | Sectoral Allocation |
|-----------------------|---------------------------------------|---|--|--|--|
| Hydrocarbon Royalties | 12 percent of the value of production | Producing Departments (prefecturas) | Compensate for the exploitation of the natural resource | According to production capacity and only to producing departments with exception of Pando and Beni (1% on national production; two thirds and one third respectively) | 85% to public investment in areas of: road infrastructure, rural electrification, agricultural infrastructure, research and technology, environmental conservation, tourism, social welfare and municipal strengthening |
| FCD | 10% of the IEHD | Producing Departments (prefecturas) | Compensate for horizontal imbalances due to hydrocarbon, mining and timber royalties | Population criteria to reach the average national per capita royalty | 85% to public investment in areas of: road infrastructure, rural electrification, agricultural infrastructure, research and technology, environmental conservation, tourism, social welfare and municipal strengthening |
| IEHD | 25% of IEHD | Departments (prefecturas) | Financial support to prefecturas | 50% distributed under population criteria, 50% distributed equally among the departments | 85% to public investment in areas of: road infrastructure, rural electrification, agricultural infrastructure, research and technology, environmental conservation, tourism, social welfare and municipal strengthening |
| IDH | 43.8% of the total IDH collection | Prefecturas, Municipalities and Public universities | Prioritize education, public health, road infrastructure and employment | 12.5 distributed to producing departments, 31.25 to non-producing departments. Thereafter, 56.9 to prefecturas, 34.48 to municipalities and 8.25 to universities | Prefecturas: economic and social development and collective security Municipalities: education, health, local economic development, employment, collective security Universities: Infrastructure and academic equipment, academic quality improvement, research and technology, social programs for vulnerable and poor population |
| CT | 25% of the total national tax income | Municipalities and public universities | compensate for vertical imbalances | 20% to municipalities and 5% to universities | 85% to public investment according to the municipality |

Table 08: Hydrocarbon Revenues Structure in million of dollars

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 (8) | 2006(9) |
|--|---------------|---------------|---------------|---------------|----------------|----------------|----------------|
| Royalties and Participations | 166.2 | 188.1 | 172.5 | 219.3 | 286.4 | 317.4 | 239.7 |
| Departmental Royalties 12% | 56.43 | 71.42 | 70.34 | 98.44 | 140.80 | 196.78 | 117.64 |
| Participation YPFB 6% (1) | 30.68 | 37.02 | 36.25 | 48.23 | 65.39 | 92.29 | 0.00 |
| Additional Participation YPFB 32% (2) | n/a | n/a | n/a | n/a | n/a | n/a | 63.25 |
| Participation TGN 6% (1) | n/a | n/a | n/a | n/a | n/a | n/a | 58.82 |
| RNC and PN (existing hydrocarbons/Law1689) (3) | 79.14 | 79.69 | 65.87 | 72.58 | 80.21 | 28.35 | n/a |
| Total Taxes | 273.0 | 269.6 | 239.3 | 240.2 | 288.1 | 413.7 | 422.4 |
| Direct Taxes | 22.3 | 36.5 | 24.6 | 34.0 | 50.0 | 85.3 | 120.2 |
| Indirect Taxes | 250.7 | 233.1 | 214.8 | 206.2 | 238.2 | 328.4 | 302.2 |
| IDH (4) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 289.37 | 570.26 |
| IEHD | 192.70 | 169.22 | 160.27 | 135.20 | 142.77 | 231.76 | 206.42 |
| IUE | 22.35 | 36.51 | 24.56 | 34.01 | 49.98 | 85.30 | 120.17 |
| IVA | 33.49 | 41.95 | 29.30 | 43.77 | 45.02 | 50.87 | 59.45 |
| IT | 22.07 | 18.93 | 21.75 | 23.05 | 40.42 | 41.23 | 29.61 |
| RC-IVA | 2.38 | 2.37 | 2.72 | 3.29 | 3.25 | 3.55 | 2.64 |
| SURTAX (5) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other income | 0.02 | 0.59 | 0.74 | 0.85 | 6.70 | 0.95 | 4.07 |
| Total Revenues from the sector | 439.26 | 457.70 | 411.80 | 459.43 | 574.55 | 1020.46 | 1232.34 |
| Gross Total Sales at the Well Head(*) | 508.60 | 593.80 | 586.90 | 820.40 | 1173.30 | 1640.70 | 980.33 |
| Royalties' share | 33 | 32 | 29 | 27 | 24 | 19 | 24 |
| Direct Taxes' share (6) | 4 | 6 | 4 | 4 | 4 | 5 | 12 |
| Indirect Taxes' share (6) | 49 | 39 | 37 | 25 | 20 | 20 | 31 |
| IDH's share | - | - | - | - | - | 18 | 58 |
| IEHD's share (7) | 38 | 28 | 27 | 16 | 12 | 14 | 21 |

Source: Royalties and Participations from the Ministry of Hydrocarbons

Taxes from the Ministry of Finance, SSI, UDAPE's statistics dossier 1988-2005 and BCB's statistics 1999-2005

(*)Total sales at the well head from Mauricio Medinaceli et al (2006). "La Nacionalización Bajo la Lupa." Total sales of 2006 was estimated according to data from the Ministry of Hydrocarbons

(1) Before May, 2005 this 6% participation was transferred to the Nation's General Treasury after deducting the necessary funds to cover YPFB's budget for the administration of contracts. After May, 2005 the participations is on behalf of the Nation's General Treasury

(2) The nationalization Decree 28701 of 2006 mandated a transitional participation for YPFB accounting for 32% of the production of fields where production is above 100,000 MMCFD

(3) The Complementary National Royalty (RNC) of 13% and the National Participation (PN) of 19% were only paid by existing hydrocarbons as it is stipulated in Law 1689. After May, 2005 there were not differences between existing and new hydrocarbons

(4) The IDH was effective since May, 2005 as disposed on Law 3058

(5) SURTAX is a direct tax that accounts for 25% of the company's extraordinary profits related to exploitation activities of non renewable resources that doubled the amount investment. It was created in 1996 to compensate the state for the decreasing royalties taxed on existing hydrocarbons. However, since its creation it did not collect any income (see section 6 of the report)

(6) It takes into account taxes from Law 843 and 1731 that regulate the Bolivian tributary system and are applied to the hydrocarbon sector: IVA, RC-IVA, IT, IUE, SURTAX and others. The percentage is in relation to gross total sales at the well head for comparison reasons

(7) The IEHD has a significant importance on the hydrocarbon sector due to its flexibility to be managed by the government and because it is an indirect tax. The IEHD is taxed to the population the moment they use any hydrocarbon derivative for any activity like transportation

(8) Law 3058 has been effective since May, 2005. Before May, 2005, former Law 1689 was effective

(9) Data was collected until June and October for Royalties and Taxes respectively

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