

COVALENCE ANALYST PAPERS

The economic, social and environmental impact of “Petroleos de Venezuela S.A” (PdVSA) for the Venezuelan society

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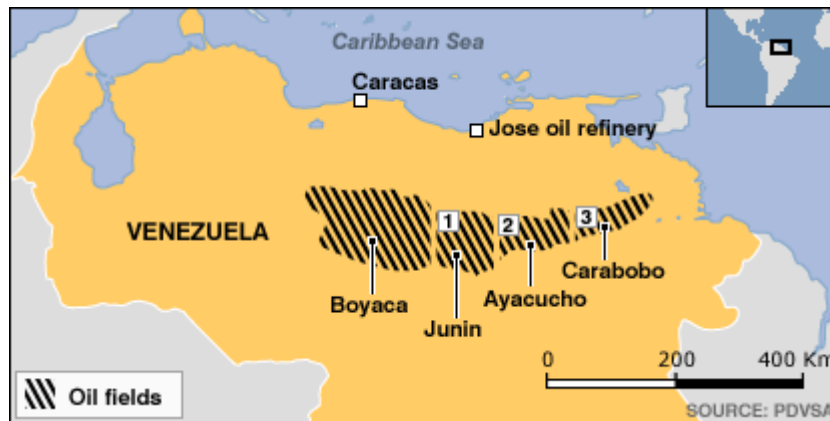
1) Historic background of the Venezuelan oil and gas industry

Historically, Venezuela has nationalized its hydrocarbon industry in 1975-1976, creating “Petroleos de Venezuela S.A” (PdVSA), the country's state-run oil and natural gas company. Along with being Venezuela's largest employer, PdVSA accounts for about one-third of the country's GDP, 50 percent of the government's revenue and 80 percent of Venezuela's exports earnings. The policy changed in the 1990s, when Venezuela has liberalized partially its oil industry in introducing a new oil policy known as Apertura Petrolera, which opened its upstream oil sector to private investments. This facilitated the creation of 32 operating service agreements with 22 separate foreign oil companies, including international oil majors like Chevron, BP, Total, and Repsol-YPF. In 1999, Venezuela adopted the Gas Hydrocarbons Law, which opened all aspects of the sector to private investment. This policy changed after Hugo Chavez took the presidential post in 1999. In recent years the Venezuelan government has reduced PdVSA's previous autonomy and amended the rules regulating the country's hydrocarbons sector. In 2001, Venezuela passed a new Hydrocarbons Law that superseded the previous 1943 Hydrocarbons Law and 1975 Nationalization Law. Under the 2001 law, royalties paid by private companies increased from 1-17% to 20-30%. Venezuela started to strictly adhere to OPEC production quotas. In 2007, Chavez announced the nationalization of the oil industry. The foreign oil companies were forced to sign agreements giving majority control of hydrocarbons projects to PdVSA. Projects owned by US companies like ConocoPhillips and ExxonMobil, who failed to sign these agreements, were taken over by PdVSA.

2) The role of Venezuela in the worldwide oil and gas market during the first decade of the 21st century

Venezuela has the largest conventional oil reserves and the second-largest natural gas reserves in the Western Hemisphere. It also has vast deposits of extra-heavy crude oil and bitumen. Venezuela consistently ranks in the top four sources of oil imports to the United States, meeting around 15% of US requirements. Although Venezuela has the ninth largest gas reserves in the world, inadequate transportation and distribution infrastructure has prevented it from making the most of its resources. Moreover, the petroleum industry consumes more than 70% of domestic production.

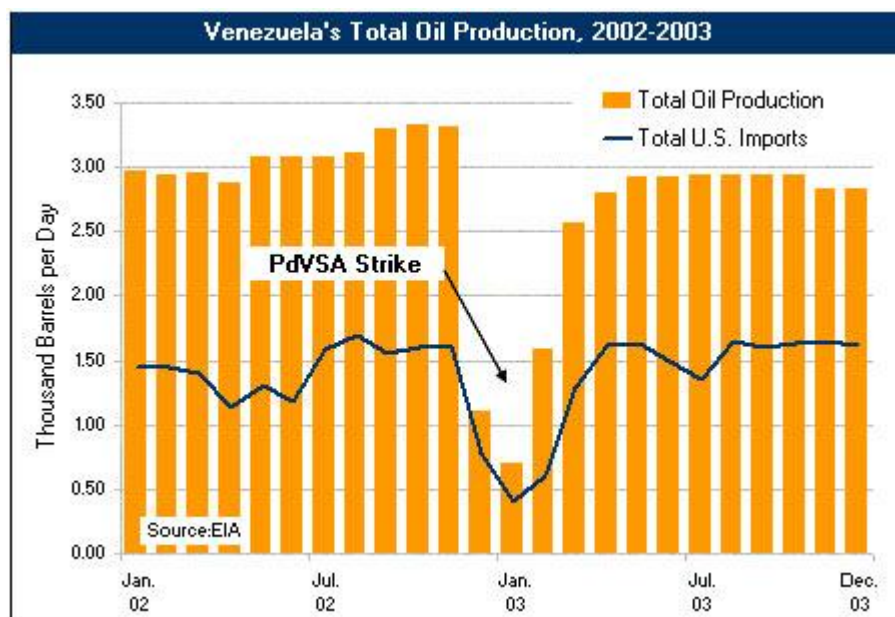
In 2005, Venezuela produced 162 million tons of oil, which is 4.1% of world's total production. By the oil production Venezuela ranks seventh in the world. Venezuela has 77.5 billion barrels (12,320,000,000 m³) of conventional oil reserves according to PDVSA figures. This puts Venezuela as fifth in the world in proven reserves of conventional oil. By also including an estimated 235 billion barrels (37,400,000,000 m³) of tar-like extra heavy crude oil in the Orinoco Belt region, Venezuela claims to hold the largest hydrocarbon reserves in the world. Venezuela is the world's eighth oil exporter and fifth largest net exporter. Venezuela's main oil fields are located at four major sedimentary basins: Maracabaio, Falcon, Apure, and Oriental. The following map indicates the geographic emplacement of main fields:



Oil projects	and companies	in affected fields:
1. Sincor (PDVSA, Total, Statoil);	Petrozuata (PDVSA, Conoco Phillips)	Phillips)
2. Ameriven (PDVSA, Conoco Phillips,		Chevron Texaco)
3. Cerro Negro (PDVSA, Exxon Mobil, BP)		

In term of gas, Venezuela has the ninth largest gas reserves in the world and the biggest reserves in South America. Proved recoverable reserves are accounted 4,179 billion cubic meters (bcm). However, inadequate transportation and distribution infrastructure has prevented it from making the most of its resources. More than 70% of domestic gas production is consumed by the petroleum industry.

It is necessary to underline the politic event occurred in 2002.2003, which has seriously decreased the oil production level of the country as illustrated the following graph:



The 11 April 2002, a general strike including Hundreds of thousands people took to the streets and marched towards the headquarters of Venezuela's state-owned oil company, (PDVSA), in defense of its recently-fired management. The organizers decided to redirect the march to the presidential palace, where a pro-Chavez demonstration was taking place. Gunfire and violence erupted between two groups of demonstrators, Caracas' Metropolitan Police (under the control of the oppositionist mayor), and the Venezuelan national guard (under Chavez's command), and snipers were reported from the areas where both opposition and Chavez supporters were concentrated. Then, unexpectedly, the commander-in-chief of the Venezuelan armed forces announced in a broadcast to a nationwide audience that Chavez had tendered his resignation from the presidency. Pedro Carmona as Venezuela's interim president. Carmona's first decree reversed the major social and economic policies that comprised Chavez's "Bolivarian Revolution", responding to these disturbances, Venezuelan

soldiers loyal to Chavez called for massive popular support for a counter-coup. These soldiers later stormed and retook the presidential palace, and retrieved Chavez from captivity. The shortest-lived government in Venezuelan history was thus toppled, and Chavez resumed his presidency on the night of Saturday, the 13th April 2002. On 14 May 2002, Chavez alleged that he had definitive proof of US military involvement in April's coup. For two months following December 2002 Chavez faced a strike organized by the resistant PDVSA management who sought to force Chavez out of office by completely removing his access to the all-important government oil revenue. The strike/lockout, led by a coalition of labor unions, industrial magnates, and oil workers, sought to halt the activities of the PDVSA. As a result, Venezuela ceased exporting its former daily average of 2,800,000 barrels (450,000 m³) of oil and oil derivatives. Chavez responded by firing PDVSA's anti-Chavez upper-echelon management and dismissing 18,000 PDVSA employees.

3) The social role of PDSVA in the "Bolivarian Missions"

Chavez's domestic policy relies heavily on the "Bolivarian missions," a series of political campaigns aimed at radically altering the economic and cultural landscape of Venezuela. The "Bolivarian Missions" have entailed the launching of government anti-poverty initiatives, the construction of thousands of free medical clinics for the poor, the institution of educational campaigns that have reportedly made more than one million adult Venezuelans literate, and the enactment of food and housing subsidies. The infant mortality rate fell by 18.2% between 1998 and 2006. The government earmarked 44.6% of the 2007 budget for social investment, with 1999-2007 averaging 12.8% of GDP. However, the Gini Coefficient has risen from 44.1 to 48 in 2005, illustrating rising inequality.

In order to target these various social purposes, the Venezuelan Government aims to use the energy's leverage. Indeed, the national oil company PDVSA has elaborated during the last years different social projects financed by the petrodollars revenues. In order to put oil resources to the service of the wider population and create a new economic model, putting an end to the social inequalities so apparent in Venezuela in the last decades, PDVSA promotes various social programs such as:

a) FONDESPA (The Fund for Social and Economical Development): Fondespa represents an alternative proposed by the President of the Bolivarian Republic of Venezuela, Hugo Chávez, to put the country's oil resources to the service of the country. PDVSA signed a contract with the Social and Economic Development Bank (Banco de Desarrollo y Social (BANDES), for the administration of a legacy fund – base for Fondespa – “which finances construction projects , assets and services for the development of infrastructure, roads, agricultural activity, health care and education in the country.

b) Endogenous Development: the Ministry of Energy and Petroleum and PDVSA have elaborated a national model of development where communities with lower incomes can improve the social welfare conditions available in their own neighbourhoods, and achieve an improvement in their standard of living.

c) Social Missions: Social Missions are massive strategies oriented to guarantee fundamental rights to the population. PDVSA directly supports almost all the Social Missions and Programs of Development which the Bolivarian Government is promoting in the country at present. Following is a report on these initiatives:

- **RIBAS MISSION (EDUCATION):** Under the management of PDVSA and the Ministry of Energy and Petroleum, this mission has incorporated a total of 718,309 winners, 31,041 facilitators with 8,174 localities, and 3,797 coordinators working in 29,929 classrooms.
- **Barrio Adentro Mission (HEALTH):** The primary objective of the Barrio Adentro Mission is to guarantee full access to integral health services. Nowadays, this mission embraces between 90 and 100% of the prioritized municipalities. Low income families are exempt from payment of essential medicine. PDVSA's contribution in 2004 paid for medical supplies and other expenses.
- **MERCAL MISSION (FOOD):** The principle objective of the Mercal program is to guarantee the access of basic food items to low income families in Venezuela by its distribution, commercialization and

delivery, as well as by the stimulation of national food production. The State subsidy to these products is approximately 40%, and in cases of extreme poverty, the distribution is totally free. In less than a year, the Mercial Mission had reached nearly 75 % of Venezuela's poor.

- **IDENTITY MISSION:** This mission has brought about one of the most recent social benefits, the registering of 5,076 000 people – out of which more than 600,000 were Venezuelan nationals and the remainder were foreigners who had been living in the country for many years. For the first time, they were all given their identification documents, the first requirement to becoming a Venezuelan citizen; with the right to take part in the electoral process and to enjoy full participation in shaping the future of the nation.
- **VUELVAN CARAS MISSION (UNEMPLOYMENT, SCOLARHIPS):** The primary goal of the Vuelvan Caras Mission is to qualify unemployed youngsters or adults by providing them with comprehensive technical training as well as in the giving them the tools to form their own production and services cooperatives.
- **Guaicaipuro Mission (COMMUNITIES RIGHT, INDIGENOUS):** it is a governmental initiative of the Bolivarian Republic of Venezuela, relating to the rights of indigenous peoples and communities as recognized under the framework of the Bolivarian Constitution. Within its main functions, Guicapuro Mission is in charge of guaranteeing agricultural and nutritional needs, in addition to promoting the harmonic and sustainable development of these unique communities with an ethno development vision.
- **TRUE NATIONALIZATION:** The defence of National Sovereignty is one of the key aspects of the national oil policy launched by the Bolivarian Government of Venezuela. This strategic policy, intended to bring about authentic oil nationalization, calls for the reaffirmation of the nation's property rights over its subterranean deposits of hydrocarbons, as well as the recovery of control of oil activities within its frontiers, from the legal and fiscal perspectives to full control over of the national oil industry.

As we can see, the Chavez Government aims to use the Venezuelan hydrocarbons revenues in order to finance various national social programs in term of education, unemployment, health, citizen rights and protection of indigenous. In other words, the nationalization of the main oil company, PDVSA, by the Chavez Government is legitimated mainly through it social project toward the population. However, the collusion between the direction of PDVSA and the Government is appeared as often when the state intends to control directly the national natural resources. Indeed, the current director of PDVSA since July 2002 is the Minister of Energy and Mines Rafael Ramirez, a cousin of t Hugo Chavez who was appointed to this strategic position and has a discretionary resources of PDVSA, which he has made its black box. According to the Central Bank of Venezuela, transfers of money that PDVSA said it has paid in 2004 and 2005 do not match the sums it has actually collected. The difference amounts to several billion dollars. In 2006, for the first time since the nationalization of oil in 1976, the public company does not publish its results more or its monthly, quarterly and annual reports. In General, the main issue during the nationalization process of national natural resources consist in it redistribution toward the citizens. The classic schema is the apparition of an oligarchy which access directly to the national hydrocarbon revenues while the large majority of the population is excluded. As an example we can name the case of Nigeria or Angola where few governmental actors profit largely of the income of oil&gas exports while the citizens have never see the economic impact of the petrodollars. Nevertheless, we have to underline that the nationalization of the Venezuelan hydrocarbon industry, despite the corruption effect, has promoted the social development of the population that the private foreign majors have never committed before.

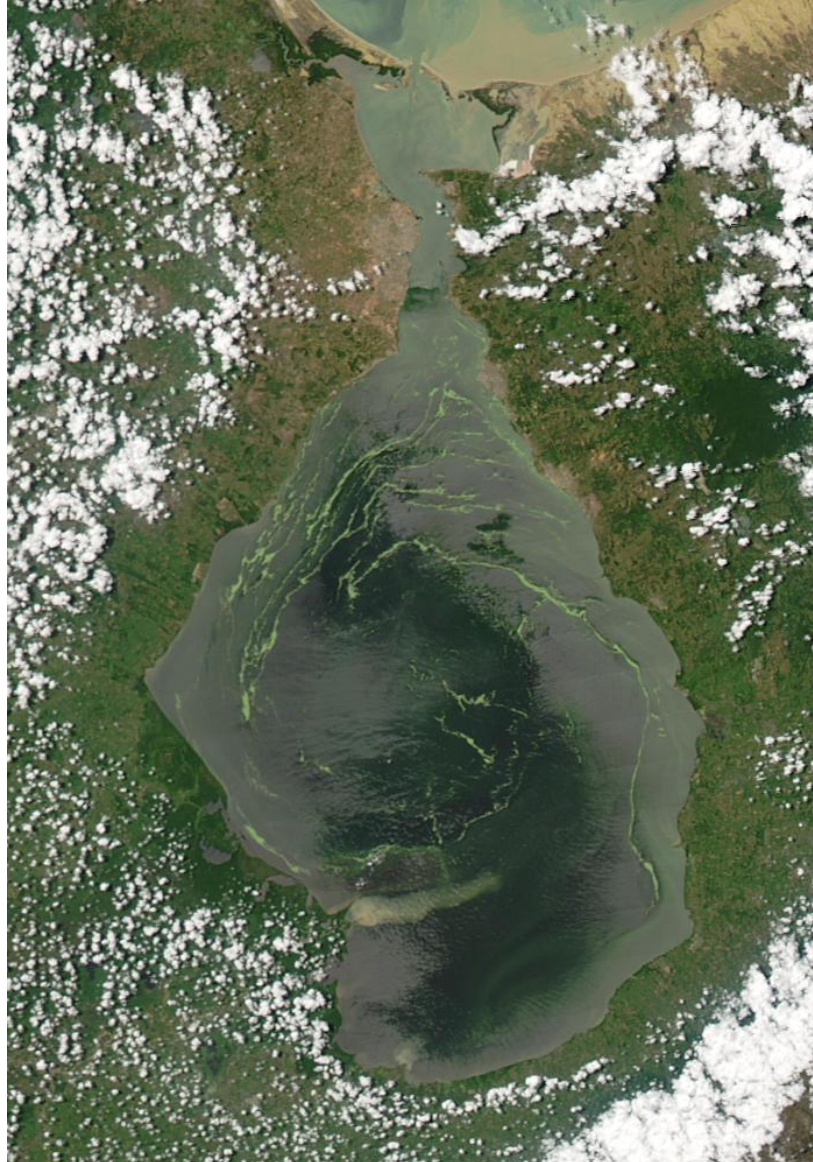
4) The environmental impact of the Venezuelan oil production: the case of the lake Maracaibo

Prolonged oil production has taken its toll on the country's environment. There is significant oil pollution along the Caribbean coast and Venezuela is the region's top emitter of carbon dioxide. As an example, we can be focused on the effect of the oil business activities toward the Lake Maracaibo in north-western Venezuela. The following map presents the geographic position of the lake:



The eastern shore of South America's largest lake is subsiding at a rate of around 8 cm per year. Oil production began in the surrounding basin in 1914, with wells drilled by Bataafsche Petroleum Maatschappij, a predecessor of [Royal Dutch Shell](#). Environmental damages commonly occur when hydrocarbons are extracted in large quantities, as they have been for decades in mature fields of the Maracaibo basin. This poses a threat not only to the oil sector and the economy, but also to the people living in towns and cities around the lake who have already been affected by severe flooding. As illustration of the oil activities effects on the environment of the lake Maracaibo, since June 2004, a large portion (18%) of the surface of the Lake is covered by [duckweed](#) specifically [Lemna](#). Although efforts to remove the plant have been underway since May, the plant-which can double its size every 48 hours-covers over 130 million cubic meters of the lake. The following satellite map presents the infestation of the plant on the surface of the lake:

Duckweed plants on the Lake Maracaibo



The only way to remove the weed is to pull it out of the lake physically—no chemical or biological method has been found to treat the weed. The government has been spending \$2 million monthly to clean the lake, and the state-run oil company [Petroleos de Venezuela S.A.](#) has created a \$750 million cleanup fund. Current efforts are barely keeping up with the growth of the plant. The removal process has proven to be particularly difficult in the center of the lake where a specially equipped ship may be needed to pull the weed off the lake. These nutrients may have triggered the duckweed's rapid expansion. Additional sources of nutrients include untreated [sewage](#) discharge and [fertilizers](#) and other [industrial waste](#) flowing into the lake through rivers. (97 percent of the country's raw sewage is discharged without treatment into the environment.) Furthermore, chemicals used to clean up [oil spills](#) may have contributed to the duckweed problem. The lake basin hosts Venezuela's largest [oil fields](#), and high concentrations of biodegradable [dispersants](#) that contain [phosphates](#) and [polyaspartic acid](#)—a chemical used to increase nutrient uptake in crops—have been found, a veritable feast for the plants.

Duckweed is not toxic to fish, but some scientists are concerned that it could suck [oxygen](#) out of the lake as it decays, [asphyxiating](#) large numbers of fish. Though officials say the weed hasn't harmed fish yet, it is putting a dent in the local [fishing](#) industry. The plant clogs the [motors](#) of small boats, making it impossible for fishers to

launch their vessels. Duckweed further threatens the local [ecosystem](#) by choking out other plants as it shades large portions of the lake.

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