

# Peak oil and Mexico

## The socioeconomic impacts of Cantarell's decline

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It is now widely recognized that Mexico's Cantarell, the second most productive oil field in the world, is in terminal decline. Adrian Lajous, former CEO of the state-owned oil company, Petróleos Mexicanos (Pemex) has bluntly described the situation:

*"Cantarell has peaked and has started its decline."*

Pemex now estimates a 14% annual production decrease at Cantarell. David Shields, author of the book *Pemex: The Oil Reform*, and arguably the leading expert on Mexico's oil production, has warned: *"This is bad news for Mexico. The field is declining faster than even the government's pessimistic scenarios."*

The U.S. Energy Information Administration (EIA) in 2008 projected decreases in Mexican oil production in general, and the decline of Cantarell in particular, through 2020. It should be noted that the EIA forecast is likely optimistic, as there are real questions as to how much production Mexico can glean from other fields to offset Cantarell.

This issue aside, however, the decline of Cantarell will clearly impact Mexico's overall production levels since the field accounts for over half of the nation's total output. Indeed, the EIA projects Mexico will become a net oil importer by 2017 – a shocking reversal for a nation that currently exports about 50% of its oil.

Reduced oil exports from Mexico will have far reaching implications. At the global level, an increasingly inelastic

production chain will be drawn that much tighter.

For the United States, a stable source of supply will be eroded to the detriment of both reliability and energy security.

As important as these consequences are, however, they pale in significance compared to the impact reduced oil production will have on the people of Mexico – a nation which has literally changed its socioeconomic profile with billions in revenues from oil exports. Record revenues pay for schools, roads, hospitals, and other important societal infrastructure.

Oil revenues constitute nearly 40% of the Federal government's budget. After a decade of steady progress in poverty reduction, a severe production decrease will put public spending in jeopardy.

In 2006, despite nearly identical sales of \$100 billion, Pemex paid \$54 billion in taxes compared to only about \$36 billion by PDVSA, Venezuela's state-controlled oil company. In short, revenue from oil exports is the foundation of Mexico's leap forward.

But, the specter of Mexico's emerging public spending crisis looms on the horizon. Reality is quickly setting in. Second quarter profits dropped 56% this year over the same period in 2007.

This decline in revenues has forced Mexican President Felipe Calderón to call for *"an urgent reduction in public spending to reduce the enormous dependence on oil revenue."*

It is no exaggeration to state that the government's ability or inability to adapt to lower oil revenues will affect virtually every aspect of life in Mexico.

In order to shed light on this issue, the present analysis focuses on how declining oil revenues will impact five core facets of Mexican society:

- Social Progress
- Economic Growth
- Inequality
- Political Stability
- Migration.

### **1. Social Progress**

Oportunidades has been the principal anti-poverty program of the Federal government since former President Vicente Fox started the effort in 2002.

The aim is to assist poor families to invest in human capital by improving the education, health, and nutrition of their children. Cash transfers are awarded for such habits as consistent school attendance and regular health clinic visits.

The International Monetary Fund (IMF) publishes data on the impact Fox's six-year term had on poverty. As these data indicate, the percentage of households not possessing an adequate level

of the given essential has steadily declined since 2000.

Index Mundi, a database of country profiles, also details the significant improvements in living standards that have occurred in Mexico since 2000. The percentage of the population below the poverty line has decreased from 27% to 13%.

The infant mortality rate has fallen from 26 to 19 deaths per 1000 live births. Mexico's literacy rate has increased from 87% to 90% for citizens over age 15 and the country's life expectancy has jumped from 71 to 76.

Under current President Calderón, Mexico is continuing its recent dedication to social and human welfare programs. An anti-poverty campaign has been implemented throughout the country. Monthly government checks are distributed to the elderly, handicapped, and single mothers. Dental clinics provide low-cost services in poor neighborhoods and many citizens receive free medical care.

The Mexican government is building orphanages for homeless children and affordable housing for families in need. More strict emission standards have been implemented and public transportation systems are improving.

Mexico has embarked on a nationwide recycling program and low interest loans are increasingly available to citizens seeking to start a small business. In essence, social programs have become a high priority for Calderón and other Mexican leaders, regardless of political party.

## 2. Economic Growth

Grant Thornton International has identified Mexico as the fourth largest emerging market in the world, behind only China, India, and Russia in terms of opportunities for investment and development.

Escalating oil prices have helped Mexico's economy sustain a healthy rate of growth. Gross Domestic Product (GDP) per capita growth has increased 47% in only eight years and now stands at about \$12,500 – the highest in Latin America. Just a decade ago, Mexico was reeling from an economic meltdown and a continuance of armed uprisings. Many banks had collapsed due to unpaid loans.

The 1994 North American Free Trade Agreement (NAFTA) opened huge markets for Mexican-made goods and expedited the success of the maquila industry now booming along its northern border. These factories and assembly plants have thrived under preferential tariff programs established by the U.S. and Mexican governments to encourage the development of industry in Mexico. Materials and equipment are imported duty-free.

In recognition of this prosperity, the U.S. Department of Treasury recently reported that Mexico is now less reliant on the economic progress of the United States. There are now "diverse factors that mitigate the effects" of economic downturns in the U.S.

In particular, the report cites Mexico's strong economic policies and the increased spending on housing, public education and other infrastructure sec-

tors as stabilizing influences on the domestic economy.

A government-backed fund, Infonavit, has doubled its lending in the past seven years and homes purchased through mortgages have tripled. Gray Newman, Head Economist for Latin America at Morgan Stanley has noted: *"The stability of the past decade-plus has allowed the financial markets and banks to grow up. Mortgages exist now. People can get loans. There has been a birth of a middle class in Mexico."*

Mexico is averaging an annual economic growth rate of about 3% and people in the lower economic strata have benefitted relatively the most. This situation is somewhat surprising given Mexico's historical pattern of economic inequities.

## 3. Inequality

There is no question that income has become more evenly distributed among Mexicans. The Gini coefficient is a statistical measure of national income inequality developed in 1912 by Italian statistician Corrado Gini and widely used in international economic analyses. The index is a ratio expressed as a percentage.

A higher percentage rate indicates more of an unequal distribution. In other words, "100" would indicate one person has all the income and "0" signifies everyone has exactly the same income. Increased levels of economic equality are taking root in Mexico, according to the United Nations (UN).

Many credit Mexico's expanding income equality to its shift to a multiparty democracy. In 2000, conservative Vicente Fox became Mexico's first president outside the Institutional Revolutionary Party (PRI) in over 70 years. Fox helped subdue the persistent inflation and runaway public spending that plagued the country. Mexico had been caught in boom-and-bust cycles for generations.

One manifestation of equality appears in vehicle ownership. In their study, *Vehicle Ownership and Income Growth, Worldwide: 1960–2030*, Dargay, Gately, and Sommer put Mexico's average annual vehicle growth rate over the next two decades at 5%.

The research group projects that Mexico will have 66 million vehicles on its roads by 2030 – an astounding increase of over 300% in less than a generation. By 2030, the total amount of vehicles on Mexican roads will have easily surpassed those in Canada, Germany, Spain, France, Great Britain, and Italy.

#### **4. Political Stability**

Until Fox from the National Action Party (PAN) was elected president in 2000, the Institutional Revolutionary Party (PRI) had a virtual monopoly on the country's politics and has been widely accused of using payoffs, intimidation, and election fraud to continue dominance stretching back to the 1930s.

The 2006 presidential election was the closest, and most controversial, in Mexico's history. In fact, the legacy of the 2006 revolution may be the seed of upcoming political turmoil regarding oil.

Political infighting continues to hamper any effort by the Calderón administration to give outside companies more of an opportunity to partner with Pemex to slow the production decline.

Simply put, the oil reform issue has completely divided the country. The former mayor of Mexico City, Andrés Obrador, has headed rallies of hundreds of thousands protesting his 2006 presidential election defeat due to "fraud."

Obrador steadfastly opposes any effort calling for greater outside involvement in the oil sector. Under his leadership, in April, the Party of the Democratic Revolution (PRD) seized the floor of the Chamber of Deputies and forced the PRI and Calderón's PAN to subject the proposed oil reform to several months of expert testimony in the Senate.

The PRD has also implemented a series of non-binding citizen initiatives voting on Calderón's proposal. The public has overwhelmingly opposed the bill. PAN officials claim this effort is simply an attempt to divide Mexicans and weaken the government. Political posturing has sent all parties scrambling to gain a favorable position for the mid-term elections next year.

Lawmakers remain decisively split on whether to internally reform Pemex or bring in outside help for deepwater exploration and production.

Resource nationalism has been a strong persuasion in Mexico since Pemex's inception in 1938. Among many Mexicans, changing the way the company does business is viewed as a threat to national security and an affront to

national pride. Further, political stability is already on shaky ground due to free trade debates and corruption accusations.

This political stability could be at further risk if government expenditures were greatly reduced due to declining oil revenues. Such revenues currently support a social safety net that includes food subsidies. The rising expectations many citizens now retain will exacerbate the situation. In the past eight years, millions of Mexicans have been given their first taste of success.

Overall, threats to Mexico's stability abound and will be exacerbated by declining oil revenues and a concomitant decline in government entitlement programs.

It is well known that drug cartel activity continues to spiral out of control in Mexico, especially in the border cities of Tijuana and Juárez. The ability to confront the cartels depends on the financial foundation of oil revenues. Further, the country has recently experienced large oil reform protests, deadly worker strikes, violent demonstrations against corn price increases, and numerous pipeline attacks. Mexico's full democracy, after only eight years, may face a bumpy road indeed.

## **5. Migration**

It has been estimated that over 250,000 undocumented Mexicans enter the U.S. every year and another 200,000 enter through legal channels. Despite the undeniable improvements in living standards, millions of Mexicans still live in poverty and seek a better life.

As oil production declines, the Federal government will lack the resources to fully fund social programs. Thus, the potential of significantly expanded out-migration to the United States looms large.

The last time Mexico experienced turmoil of this magnitude was during the revolution era from 1910 to 1940 – when a quarter of the population left the country, most arriving in the United States. A similar mass migration today would obviously have significantly greater ramifications because Mexico's population has increased five-fold in the last half century.

In their groundbreaking book, *Migration, Unemployment and Development*, Harris and Todaro claim economics is the main force behind migration patterns. Their research supports the Neo-Classical microeconomic theory of migration, which asserts increasing the happiness of a prospective migrant is the most effective way to encourage that individual to remain in his or her native country.

Mexican migration expert, Wayne Cornelius, from the University of California at San Diego, agrees. He believes the emerging middle class in Mexico is the reason the number of undocumented migrants detained by U.S. border agents declined by 20% in the past year.

But, if enough Mexicans feel the extensive socioeconomic crunch declining oil revenues will bring, this slowdown in out-migration would rapidly be reversed. The United States could be faced with an unprecedented humanitarian crisis along its southern border.

## Conclusion

The recent peak and inevitable decline of Mexico's Cantarell signals continuing decreases in both total oil production and exports. Reduced exports will lead to lower oil revenues and, in turn, will force a reduction in funding for the socioeconomic programs that have improved the quality of life in Mexico.

The Federal government will be hard pressed to maintain social programs, economic development, and infrastructure expansion. The "Principle of Rising Expectations," eloquently defined by de Tocqueville in the 1850s, is about to meet the reality of peak oil in Mexico. And the impact may well take a heavy toll on the hopes, dreams, and aspirations of millions of Mexican families. ¶

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