THE ASSOCIATION FOR THE STUDY OF PEAK OIL AND GAS

"ASPO"

NEWSLETTER No. 85 – JANUARY 2008

ASPO started as a European network of scientists and others, having an interest in determining the date and impact of the peak and decline of the world's production of oil and gas, due to resource constraints. Now, associates are active in Australia, Austria, Belgium**, Canada, China,** Croatia, Denmark, Egypt**,** Finland, **France, Germany,** Hong Kong**, Ireland,** Isle of Man**,** Israel**, Italy,** Luxembourg**, Japan,** Korea, Malaysia, **Mexico, Netherlands, New Zealand,** Norway **Portugal,** Russia**,** Singapore, Slovenia, **South Africa, Spain,** Sweden**, Switzerland, United Kingdom, USA,** and Venezuela**.** (The formally constituted entities are shown in bold face)

Missions:

1. To evaluate the world's endowment and definition of oil and gas;
2. To study depletion, taking due account of economics, demand, technology and politics;
3. To raise awareness of the serious consequences of oil and gas decline for Mankind.

Foreign language editions are available as follows:

Spanish: www.crisisenergetica.org

French: www.oleocene.org (press "Newsletter")

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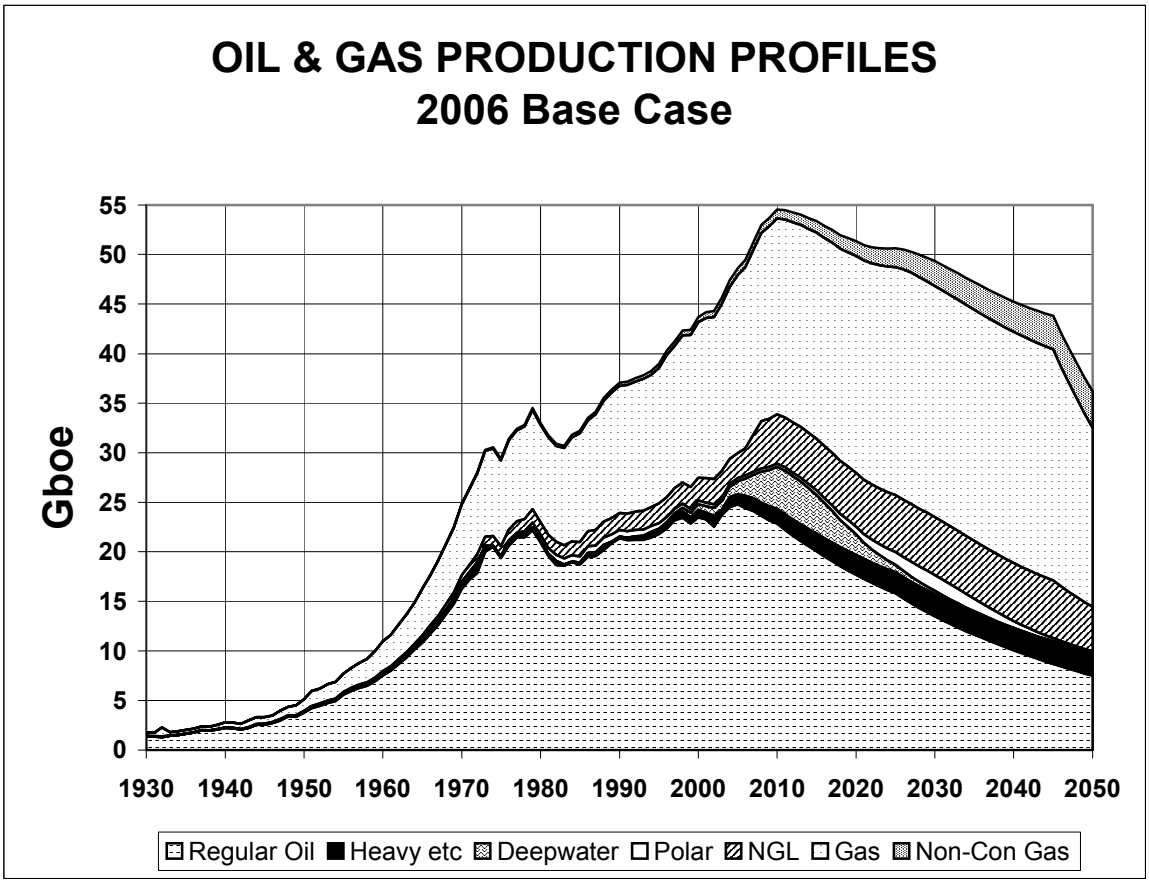
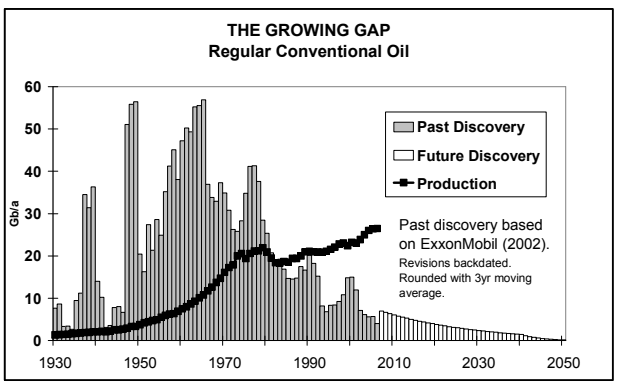
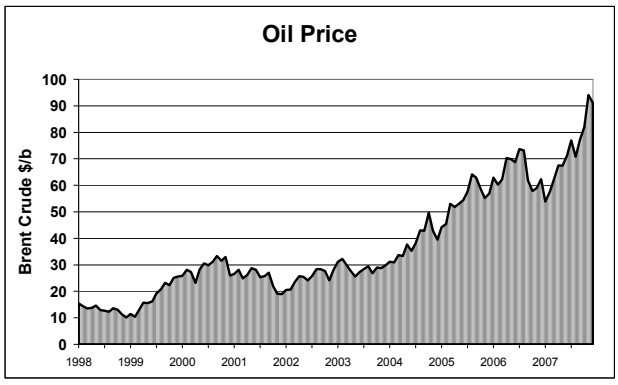
Index of Country & Regional Assessments with Newsletter Reference (*revised)

The General Depletion Picture



ESTIMATED PRODUCTION TO 2100										End 2006
Amount			**Gb**	**Annual Rate - Regular Oil**						**Gb**	**Peak**
Regular Oil				Mb/d	**2006**	**2010**	**2015**	**2020**	**2030**	**Total**	**Date**
Past	**Future**		**Total**	US-48	3.6	3.0	2.3	1.8	1.1	200	1970
Known Fields		New		Europe	4.5	3.6	2.5	1.7	0.8	76	2000
1001	773	126	1900	Russia	9.5	9.5	7.6	6.1	3.9	230	1987
	899			ME Gulf	20	20	20	20	18	693	2015
All Liquids				Other	29	27	22	19	13	701	2004
1102	1398		2500	**World**	**67**	**63**	**55**	**48**	**37**	**1900**	2005
2006 Base Scenario				**Annual Rate - Other**							
M.East producing at capacity				Heavy etc.	2.8	4	5	5	6	212	2030
(anomalous reporting corrected)				Deepwater	3.6	12	11	6	1	66	2011
Regular Oil excludes Heavy Oils				Polar	0.9	1	1	2	4	52	2030
(inc. tarsands, oilshales); Polar &				Gas Liquid	7.6	8	9	9	10	261	2035
Deepwater Oil; & gasplant NGL				*Rounding*				-1	2	8	
Revised 30/09/2007				**ALL**	**82**	**87**	**80**	**70**	**60**	**2500**	2010





897. In Memory of Ali Samsam Bakhtiari

It is with great sorrow that we report the untimely death of Ali Samsam Bakhtiari in Tehran. He was a courteous and courageous man who did much to raise awareness of Peak Oil and draw attention to the unreliable nature of reported reserves in certain countries. His book, *The Last of the Khans*, published in 2006, documents the important role of his antecedents who controlled the Zagros foothills where many of the oilfields lie. He contributed greatly to early ASPO Conferences, but evidently came under pressure to distance himself in recent months. The circumstances are not known but there is no evidence to suggest that he was suffering from ill-health.

898. ASPO AUSTRIA

A successful series of workshops, meetings and a lecture attended by almost 500 in the Vorarlberg Region of Austria during early December have paved the way for the establishment of ASPO-AUSTRIA by a group of dedicated experts, specialising in sustainable architecture. A report on *Peak Oil, Midpoint Depletion and the Consequential Impact on Vorarlberg* has been produced and is ready for publication. It is noteworthy that the lecture was attended by senior local politicians who expressed their understanding of the Peak Oil issue and their resolve to implement appropriate policies to plan and prepare for the consequences.

The group is concerned about the wider energy issues, and is evaluating the depletion of coal, gas, and uranium in addition to oil. Progress is already being made in the region with the introduction of energy-efficient building standards, and attention now turns to transport issues. Austria remains a beautiful place, and it can set an example in finding a path out of the consumeristic society that cheap energy has delivered over a relatively short span of history. That chapter now comes to an end.

899. Major Oil Companies pass peak

It is obvious that the peak of oil production will not be evident until some years after it has happened, but data published by Matt Simmons suggests that the major companies (ExxonMobil, Shell, BP, Total, Repsol, ENI and Conoco-Phillips) may have peaked already. Their combined production in January 1997 was 12.4 Mb/d and rose to a maximum 13.8 Mb/d in January 2004, before falling to 12.6 Mb/d in January 2007. It is naturally not a smooth curve, but if this year's results confirm the downward trend, it may signify that they are past peak.

In years past, seven major companies (Exxon, Mobil, Shell, BP, Gulf, Texaco, Chevron) substantially controlled world oil supply, but they successively lost their rights in several major producing countries, and now control no more than about 10% of the world's reserves. Financial pressures led them to merge, such that the seven are now reduced to four (ExxonMobil, Shell, BP, ChevronTexaco). This allowed them to shed staff and contract in a diplomatic manner without disturbing the stockmarket.

They are now selling off minor refineries and marketing chains, evidently recognising that they will have downstream over-capacity as supply constraints bite in earnest. They are also buying their own stock to artificially support the stock market.

As their situation continues to change, we may look forward to the day when an enlightened Chief Executive abandons words of the false optimism promising eternal growth but offers his shareholders a well managed, intelligent and highly profitable contraction towards the day their company finally closes its doors in the not too distant future.

The countries that expropriated the rights of the foreign companies, as was their national prerogative, are commonly accused of *resource nationalism.* It offends the dictates of out-dated globalism, which claims that the resources of any country belong to the highest bidder. A politician in such a country representing the interests of his electors can be forgiven for doing his best to preserve his country's critical energy supplies for the benefit of its citizens, thereby indirectly giving them a commercial advantage. The intelligent investor would prefer this approach to false promises that run in the face of the constraints of Nature.

990. Living through the Energy Crisis

A booklet with the above title by C.J.Campbell and Graham Strouts is available for purchase on www.zone5.org using a Paypal button. The booklet contains the proceedings of an imaginary judicial inquiry into peak oil, and provides the underlying data in an appendix. It then moves on to address the responses in terms of sustainable living.

991. Marketing Peak Denial

A Google search of the web gives a large number of references to *Peak Oil*, most of which provide a reasoned explanation of the phenomenon, but at the head of the list is an item, sponsored by CERA, entitled *Peak Oil Theory Flawed*. This promotes a report entitled *Why the Peak Oil Theory falls down – myths, legends and the future of oil resources,* which CERA offers for sale at $499.

But the title itself misleads. The *Overview* of the report states that CERA does not believe in an *unlimited resource*. Once that premise is accepted it follows that production must start and end, passing a peak in between, immediately confirming that there is nothing *theoretical* about peak oil. CERA proposes an undulating plateau followed by a gentle decline, but presumably one of the undulations is higher than the others, representing maximum production, or in other words *Peak.*

CERA is a consultancy in the business of making money which naturally involves meeting its clients' demands. The motor industry, for example, might prefer to avoid the burden of having to restructure its plants in order to produce small energy efficient vehicles, the demand for which would likely rise as consumers come to recognise Peak Oil and prepare themselves for it. The financial community too has much to lose if investors came to understand that the economic growth of the past was driven by cheap energy, which is set to dwindle in the years ahead.

Even so, the CERA *Overview* does go so far as to urge policymakers to have a clear understanding of the *risks*: they are naturally increased by the provision of biased information and interpretation.

992. Comments on an article in the Sunday Times

The Sunday Times of December 16th 2007 carries an article by David Smith entitled: *Plenty of Oil left in the Global Tank.*

The title is entirely correct : there is plenty of oil left in the global tank, if one wants to put it in those slightly misleading terms. Peak production normally comes when only about half the total available has been consumed. But the Article then goes on to ask the common but silly question : *Is oil starting to run out ?* Oil was formed in the geological past which means that is it a finite resource subject to depletion. It follows that we started running out when we burnt the first gallon. It also means the production starts and ends passing a peak in between. Some fifty countries are now producing less than at some date in the past, strongly suggesting that they are in many cases into a terminal post-peak decline.

The Article then derides those who try to analyse the resource base in order to estimate the date of peak and rate of subsequent decline. Were valid Reserve data in the public domain, it would be a simple exercise but, as it is, the critical information is extremely unreliable, exhibiting a wide range between data bases. For example, the Oil & Gas Journal reports Canada's reserves at 179 Gb (billion barrels) whereas the equally respected World Oil reports 25 Gb (of which it says 20 Gb are in tar sands). This in part reflects confusion over the definition of the boundary between so-called *Conventional* and *Non-Conventional* oils.

The Article is, in particular, derisive of the evolving estimates by C.J.Campbell of ASPO, evidently relying on the words of Michael Lynch, who has made a career from such criticism, although lacking oil industry experience or technical qualifications in the subject. Indeed an early estimate of a peak in 1990 proved wrong because it was based on public reserve data before the degree of under-reporting by oil companies and exaggeration by OPEC was appreciated. This misunderstanding has since been corrected, speaking of progress in the evaluation.

It is worth commenting on OPEC's reported reserves, in view of their importance. In 1985, Kuwait increased its reported *Proved Reserves* from 64 to 90 Gb, when it was competing for quota based on reported reserves, although nothing particular had changed in the oilfields. If the recent words of the Kuwaiti Minister are to be believed, the actual *Proved & Probable Reserves* are about 52 Gb. This suggests that the reported 90 Gb represented a generous estimate of total discovered and not the amount remaining, given that cumulative production to 1985 was 22 Gb (90-22=68 Gb). Kuwait's action later caused the other OPEC countries to increase their estimates to protect their quotas. In 1988, Abu Dhabi matched Kuwait with 92 Gb (up from 31 Gb); Iran went one better at 93 Gb (up from 49 Gb); Iraq capped both at 100 Gb (up from 47 Gb). Saudi Arabia could not match Kuwait since it was already reporting more, but in 1990 announced a massive increase from 170 to 258 Gb. Little credence therefore attaches to OPECs reported reserve increases, referred to in the Article.

Access to better data, partly from confidential industry sources, has made in possible to improve the assessments although many uncertainties remain, which will no doubt give rise to revisions in the future. However, with production in one country after another, including especially the North Sea countries and Mexico, heading into inexorable decline, the range of uncertainty diminishes. The decline in production in oilfields is imposed mainly by the immutable physics of the reservoirs, and the decline in discovery, as

observed in most productive provinces, reflects the fact that the larger and better prospects were drilled first for obvious reasons. This applies also to the Middle East, and it is a mistake to assume that the constraints there are simply political. Since even relatively small oilfields are highly profitable, economic factors can have no more than a limited impact in increasing production. It is noteworthy that the combined production from the major oil companies has been falling since January 2004, presumably not for want of trying, and despite high prices - (see Item 899 above).

Current estimates suggest that *Regular Conventional* production peaked in 2005, but that the addition of *Non-Conventional* categories (heavy oils, deepwater and polar oils, and Natural Gas Liquids from gas plants) could delay the overall peak for all liquids until around 2010. What matters is not so much the date of peak but the vision of the long remorseless decline that comes into sight on the other side of it. It must surely have a major impact, given the central role of oil-based energy in the modern economy. It is worth remembering that if production were to be ramped up with superhuman effort, especially in the Middle East, it would simply raise the peak, and steepen the subsequent decline, making a bad situation worse.

The Article, having lulled itself into the flat-earth view that oil supplies are near limitless, goes on to address economic factors including the high prices. They largely reflect profiteering from shortage by the Middle East countries in the absence of adequate supplies from the heavily depleted alternative sources. It probably still costs the Middle East countries about $5-$15 a barrel to produce oil, so the balance is an inflationary form of liquidity destabilizing the financial system. High oil prices and economic recession will likely dampen oil demand, such that prices could indeed fall in the future. If economic recovery should follow such a fall, the demand for oil might rise, before hitting again the falling supply capacity barrier as imposed by depletion.

It is sad that the Sunday Times should publish such a shallow article on this important subject, but Nature for her part does not lie.

993. Reporting More

One way to increase reserves is to change the reporting rules. The SEC rules were perfectly sound for the purpose they were designed : namely to provide investors with financial estimates referring to what was termed *Proved Reserves* for the amount a company was both sure of being able to produce profitably and had committed the necessary investments to do so. These estimates said little about the actual size of a field. The rules were designed to prevent fraudulent exaggeration but had no difficulty with cautious reporting. Accordingly, the international companies tended to under-report the size of fields, especially large ones, which gave rise to the comforting but misleading image of *reserve growth* by upward revision. In some cases doing so also carried tax advantages. The OPEC countries had their own system, as described above in Item 992, which seems to have been to report original not remaining reserves. Their reports have accordingly remained substantially unchanged for many years, as new discovery has not contributed much.

The following article suggests that the SEC now proposes to liberalise its rules, but it is important to remember that the resulting “growth” is simply in the reporting : the amount recoverable from the rocks being the same.

> Three commissioners on the Securities and Exchange Commission think current disclosure rules for oil and natural gas reserves are outdated and need revising. By a 3-0 vote, the SEC today approved a concept release that could open the door for energy companies to use up-to-date technology to estimate reserves, which would increase reserves for many companies, as well as loosening the requirements on which reserves can be disclosed to investors. Republican commissioner Paul Atkins was not present for the vote.For oil and gas companies, the change in disclosure rules is a long time coming. The current rules date back to the 1970s, and a number of new techniques, including 3-D seismic interpretation, have improved oil company reserve estimates, some experts say. The SEC rules require older technology that some feel is outdated, though in 2004 the agency allowed a few oil companies to use seismic data to justify reserves in the Gulf of Mexico. Energy companies are also restricted in disclosing probable and possible oil and gas reserves, or those with a less-than-reasonable certainty of extraction. Companies can disclose only proved reserves, according to current SEC rules. Commissioners seemed open to the idea of expanding current rules to allow companies to disclose non-proved reserves, albeit with caveats. Democratic commissioner Annette Nazareth said she would favor a more “principles-based rule” to adapt to “advancements in the field.” She also said she was open to creating a new category of reserves in financial statements, as long as companies explained to investors how the new category differed from proved reserves. All commissioners present said SEC rules should be modernized to allow updated technology. “The world is a much different place than” in 1975, when Congress ordered the SEC to change disclosure rules on oil and gas reserves, said SEC chairman Christopher Cox. The concept release also asks whether third parties should verify reported reserve estimates. Once the concept release is published, it will be open for public comment for 60 days, after which the SEC may propose a rule.

FINANCIAL WEEK, 18 DECEMBER **(***Reference furnished by Franco di Cesare)*

994. Brasil Analysis Updated

It is perhaps a good time to update the assessment of Brasil, first covered in Newsletter 26 of February 2003 in view of reports of a major new deepwater discovery.

Brasil

Brasil is the largest country in South America, covering some 8.5 M km^2 and supporting a population of about 189 million. Mountain ranges of moderate relief form the northern boundary with Venezuela, giving way to the vast rain forests of the Amazon basin. To the south follow extensive dissected tablelands of forest and grass. Most of the population is concentrated along the Atlantic littoral, where are located the largest cities, Sao Paulo, with about 10 million inhabitants, and Rio de Janeiro, the former capital. Brasilia is a purpose-built modern capital at an altitude of 1000m in the southwestern interior, which became the seat of government in 1960, now housing a population of about two million.

Vicente Pinzon, a Spanish explorer, landed near Recife in 1500 to find a vast country sparsely populated by Arawak and Carribs natives, a few of whose descendants are still to be found in the Amazon headwaters. Although discovered by a Spaniard, the territory lay within what had been declared by the Pope to be a Portuguese sphere of influence under the Treaty of Tordesillas in 1493. A few months later, the Portuguese Government dispatched an expedition under the Italian navigator, Amerigo Vespucci, to confirm its rights, giving his Christian name to the Americas. Portuguese colonisation followed over the next centuries but the country was also subject to Spanish, French, British and Dutch attentions accompanied by partial settlement. Missionaries extended practical sovereignty into the interior, occasioning disputes with bordering Spanish colonies. Slaves from Africa were imported in large numbers to work the plantations.

When Portugal was occupied by Napoleon's troops in 1807, the Government under the Regent, Prince John, moved to Brasil, from whence it administered the homeland. On returning to Lisbon in 1816, he left his son, Dom Pedro, in Brasil who declared independence for his adopted country in 1822, appointing himself as its Emperor in a grandiose gesture. But political turbulence and boundary disputes with Argentina followed until order was established under Pedro II, in 1840. A period of economic progress ensued with the construction of railways and the abolition of slavery. A new constitution, modelled on that of the United States, established the country as a Federal Republic in 1891, but did not bring to an end the political turbulence, which continued through much of the 20th Century. A dictatorial regime under President Vargas ran the country before and, again, after the Second World War. Even so, immigration from Europe, and particularly Germany, increased radically, being accompanied by economic growth. A period of military government was followed in 1985 by a return to civilian rule. Although economic progress, partly related to the country's position as the world's largest coffee producer, was made, weak financial management led to periodic periods of rampant inflation and excessive foreign debt.

The populist, left-leaning government under Luis Lula da Silva was re-elected recently. This is consistent with the general political atmosphere in Latin America in its attempts to counter globalism, which has concentrated wealth still further into the hands of the so-called oligarchs.

In geological terms, most of Brasil is made up of ancient crystalline rocks of the Guayana and Brasilian Shields, lacking petroleum prospects. They are separated one from the other by a great left-lateral fault-zone which is followed by the Amazon River. In earlier years, Brasil was not considered to be prospective territory for oil, being substantially ignored by the international oil companies. Accordingly, the Government was forced to try to find oil itself, setting up a State company, Petrobras, in the 1950s, which was initially run by Theodore Link, the former Chief Geologist of Esso. It mounted an extensive onshore exploration programme, which was at first rewarded by no more than a few small oilfields in the Amazon valley, containing oil generated in Silurian shales.

Attention then turned to the coastal basins with their offshore extensions. They represent rifts that formed with the initial opening of the South Atlantic in the early Cretaceous. Oil was generated in stagnant lakes that filled the rifts, and later migrated into rather poor quality reservoirs that were deposited along the rift margins. These basins yielded a large number of small to moderate-sized fields, together containing some 5 Gb of oil. Overall production from the onshore and shallow offshore reached a peak in 1990 at 605 kb/d. It is a mature province, which has been very extensively drilled, offering only modest scope for new discovery.

Brasil's consumption of oil was rising throughout the 1970s to pass 1 Mb/d by the end of the decade. Soaring imports were causing a heavy burden on the balance of trade. With this incentive, Petrobras turned its eyes ocean-ward, and with necessity being the mother invention, decided to try to find out what the deepwater potential might be. To its enormous credit, it pioneered the necessary technology, demonstrating that the so-called developed world has no particular claim to technological prowess.

It began to understand a remarkable geology of this new petroleum system. It comprises a somewhat later phase of Cretaceous rifting, but still contains the critical basal hydrocarbon source rocks. Here, they were capped by a layer of mid-Cretaceous salt, resulting from the evaporation of sea-water as the opening South Atlantic temporarily broke into rift lakes. The indifferent reservoirs of the rift system could not support the cost of deepwater operations at the then relatively low oil prices, but Petrobras was saved by the identification of remarkable Tertiary reservoirs. They originated as turbidites that can be compared with submarine avalanches, consisting of interbedded, graded muddy sands and clays. They do not normally represent good reservoirs, but on the continental slope of the South Atlantic a long-shore current winnowed out the fine-grained material, depositing dune-like bodies of sand with excellent reservoir

characteristics. In the deepwater extension of the Campos Basin, Petrobras discovered several large gentle structures with stratigraphic components, which were in communication with the underlying source rocks. Exploration has been richly rewarded by the discovery of about 24 Gb, occurring mainly in a small number of giant fields, which started tp come in during the late 1980s. Exploration along the rest of the shelf has not been promising. The Amazon delta is a relatively small construction, because the Amazon flowed westward into the Pacific until its flow was reversed by the uplift of the Andes in the later Tertiary. It is likely to be gas prone, if productive at all.

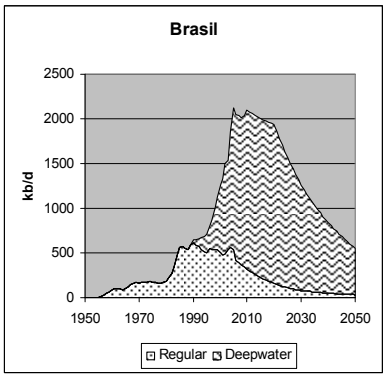
Brasil

		Regular	Deepwater	Total
Population M				190
Rates Mb/d				
Consumption	2006			1.82
per person b/a				3.5
Production	2006	0.41	1.6	2.1
	Forecast 2010	0.38	1.8	2.1
	Forecast 2020	0.16	1.5	1.9
Discovery 5-yr average Gb		0.002	1.7	
Amounts Gb				
Past Production		5.9	5	10.9
Reported *Proved Reserves*		11.8	-	
Estimated Future Production to 2050				
From Known Fields		2.75	14.5	13
From New Fields		0.3	5.0	5.3
Future Total		3.05	19.5	23
Past and Future Production		9.0	24	33
Current Depletion Rate		4.7%	3%	
Depletion Midpoint Date		1998	2019	
Peak Discovery Date		1975	1996?	
Peak Production Date		1990	2015	2005

These limitations evidently persuaded Petrobras to investigate the pre-salt sequence. The effort has been rewarded by the recently announced Tupi find in the Santos Basin, which is reported to lie at 5000-7000m depth in 3000m of water, 250 kms offshore.

The discovery has attracted much positive media comment with claims that it could hold between 5 Gb and 8 Gb of light oil. A degree of scepticism is however in order, as it is not clear if these estimates refer to the specific structure tested or to the basin as a whole. It is also not clear if they refer to oil or oil and gas combined. At this depth, it would be reasonable to expect gas-condensate. In this connection, it is significant that Petrobras has announced plans to liquefy gas from the field in floating facilities, hoping that production may commence at about 100 kb/d by 2010-11, reaching a peak at double that amount in 10-15 years' time.

Operations test management and technical skills to the maximum. There has already been one serious accident with the loss of a mammoth floating production system. The lenticular nature of reservoirs that diminish water-drive, and the fact that the partly degraded oil congeals in the freezing ocean depths, add to the difficulties. Additional difficulties are posed in connection with penetrating the thick salt sequence overlying the recent find, whose development will certainly be expensive, with individual wells estimated to cost at least $30 million and perhaps much more. In general, field production profiles are likely to be characterised by a lengthy low plateau rather than a peak, with fields being brought on stream sequentially to meet Brasil's domestic needs and optimise the investment in the floating equipment. But the staggered nature of development does give a roughly bell-shaped depletion profile.



Under the pressures of globalism, Brasil opened its doors to foreign oil companies in the late 1990s, breaking the Petrobras monopoly, but it will nevertheless likely retain a dominant position in the prime areas.

It looks as if Brasil could meet its domestic needs until around 2020 assuming that general economic recession holds demand to current levels. The foreign companies have the right to export, but as the Government begins to appreciate the coming shortfall, it is likely to try to conserve is resources to meet national needs, a move which would give rise to international trade tensions.

Brasil has other energy options with which to face the declining oil age. It has ample solar energy and hydroelectic power, although the latter has already proved inadequate to meet electricity demand. The country produces substantial amounts of ethylene from sugar cane, giving a current export capacity. It also has vast deposits of Permian oil shale in the south of the country, thought to be capable of yielding as much as 50 Gb of oil, given that commercial production should eventually become viable, which is far from sure as shale oil production has at best a very low net energy yield.

In general, it can be said that Brasil is fairly well placed to face the Second Half of the Age of Oil, although its excessive population is putting pressure on the natural habitat, especially in relation to the Amazon Forest, which so far has acted as a valuable carbon sink for the world as a whole.

995. Zero-Sum Future

An article by Martin Wolf in the Financial Times of December 19th draws attention to the political consequences of the looming radical economic change facing the world during the second half of the Age of Oil when supply declines. Prior to the fossil energy age, people lived in what is described as a zero-sum world, whereby one man's gain had to be matched by another's loss, being an underlying cause of tension and conflict. The *Positive-Sum* age dawned with the arrival of new energy from coal, oil and gas, which in theory at least removed the cause of conflict as there was room for everyone to benefit. This in practice did

not exactly happen as the epoch was accompanied by two world wars of unparalleled severity because the new energy facilitated transport and technology such that conflicts became long wars of attrition. The article expresses the hope that human ingenuity will somehow counter the impact of the looming energy decline, fearing that *without it, dark days will come*.

The article does not go so far as to suggest a *Negative-Sum* world, which in reality is the more likely scenario, given in particular the explosion of population. The new imposed regionalism may indeed again be accompanied by tensions, conflicts and tribal wars, as marked the *Zero-Sum* world of the past, but perhaps world wars will become more difficult.

It is noteworthy that a journal such as the Financial Times, which serves the economic and financial community, should begin to refer to the impact of declining energy supply in economic, political and historical terms. Peak Oil is indeed a turning point of historic magnitude.

996. New US policy to cut oil consumption

In 1970, the United States was one of the first countries to pass its production peak as imposed by the depletion of its finite oil resources. One country after another has followed its example, but now in a most remarkable step, the Government seems to recognise this reality with new policies to cut demand, as outlined in the following statement. It comes on the heals of a report by the National Petroleum Council entitled ***Facing the Hard Truths about Energy.*** It is a most positive step, which is certainly far better than trying to secure foreign oil by military means.

> President Bush joined Energy Secretary Bodman and members of Congress at a Dec. 19 DOE ceremony, signing a bipartisan energy bill to improve fuel economy and reduce oil dependence. The provisions act on the President's bold "Twenty in Ten" vision.
>
> "Tonight, I ask Congress to join me in pursuing a great goal. Let us build on the work we've done and reduce gasoline usage in the United States by 20 percent in the next 10 years. … To reach this goal, we must increase the supply of alternative fuels, by setting a mandatory fuels standard to require 35 billion gallons of renewable and alternative fuels in 2017 – and that is nearly five times the current target. At the same time, we need to reform and modernize fuel economy standards for cars the way we did for light trucks – and conserve up to 8.5 billion more gallons of gasoline by 2017. … America is on the verge of technological breakthroughs that will enable us to live our lives less dependent on oil. And these technologies will help us be better stewards of the environment, and they will help us to confront the serious challenge of global climate change." (*Reference furnished by Franco di Cesare*)

997. Financial Times comments on the US Situation

The Financial Times, which is by all means an establishment journal for the financial community, has published a remarkably forthright article on the current problems facing the United States. It makes a comparison with the fall of the Roman Empire, but in fact misses the key role of depletion in both cases. The collapse of the Roman Empire coincided with the Rio Tinto silver mines in Spain flooding after hitting the water table. The supply of silver dried up, and there was not enough money to pay the mercenaries to defend the empire. It is possible that the depletion of oil may have a similar impact on current empires. (See also Item 995. above for another telling item in the Financial Times)

American Empire

Learn from the fall of Rome, US warned

By Jeremy Grant in Washington Financial Times.com

Published: August 14 2007 00:06 |

> The US government is on a "burning platform" of unsustainable policies and practices with fiscal deficits, chronic healthcare underfunding, immigration and overseas military commitments threatening a crisis if action is not taken soon, the country's top government inspector has warned.
>
> David Walker, comptroller general of the US, issued the unusually downbeat assessment of his country's future in a report that lays out what he called "chilling long-term simulations".
>
> ***These include "dramatic" tax rises, slashed government services and the large-scale dumping by foreign governments of holdings of US debt.***
>
> Drawing parallels with the end of the Roman empire, Mr Walker warned there were "striking similarities" between America's current situation and the factors that brought down Rome, including "declining moral values and political civility at home, an over-confident and over-extended military in foreign lands and fiscal irresponsibility by the central government".
>
> "Sound familiar?" Mr Walker said. "In my view, it's time to learn from history and take steps to ensure the American Republic is the first to stand the test of time."
>
> Mr Walker's views carry weight because he is a non-partisan figure in charge of the **Government Accountability Office**, often described as the investigative arm of the US Congress.
>
> While most of its studies are commissioned by legislators, about 10 per cent – such as the one

containing his latest warnings – are initiated by the comptroller general himself.

In an interview with the Financial Times, Mr Walker said he had mentioned some of the issues before but now wanted to "turn up the volume". Some of them were too sensitive for others in government to "have their name associated with".

"I'm trying to sound an alarm and issue a wake-up call," he said. "As comptroller general I've got an ability to look longer-range and take on issues that others may be hesitant, and in many cases may not be in a position, to take on.

"One of the concerns is obviously we are a great country but we face major sustainability challenges that we are not taking seriously enough," said Mr Walker, who was appointed during the Clinton administration to the post, which carries a 15-year term.

The fiscal imbalance meant the US was "on a path toward an explosion of debt".

"With the looming retirement of baby boomers, spiralling healthcare costs, plummeting savings rates and increasing reliance on foreign lenders, we face unprecedented fiscal risks," said Mr Walker, a former senior executive at PwC auditing firm.

Current US policy on education, energy, the environment, immigration and Iraq also was on an "unsustainable path".

"Our very prosperity is placing greater demands on our physical infrastructure. Billions of dollars will be needed to modernise everything from highways and airports to water and sewage systems. The recent bridge collapse in Minneapolis was a sobering wake-up call."

Mr Walker said he would offer to brief the would-be presidential candidates next spring.

"They need to make fiscal responsibility and inter-generational equity one of their top priorities. If they do, I think we have a chance to turn this around but if they don't, I think the risk of a serious crisis rises considerably". The Financial Times Limited 2007 *(Reference furnished by Virginia Abernethy)*

998. The Pope addresses the Energy Issue

The New York Times of December 25th reports on the Pope's Christmas Eve message, which includes a comment on the *"abuse of energy, and its selfish and reckless exploitation……in a polluted world whose future is at risk"*. The Pope concerns himself with the future wellbeing of mankind, and while Peak Oil was not specifically referred to, it does rather sound as if the Pontiff recognises that there is such a thing as an *Oil Age*, expressing concern about how its *Second Half* — being marked by declining production— will unfold. Apparently, the Vatican was represented at the ASPO-USA Conference. *(Reference furnished by Jim Baldauf)*

999. Data for 2007

The Oil & Gas Journal has been compiling data on oil and gas reserves and production for very many years and is a widely quoted source. The 2007 dataset contains an obvious weakness with the reserves of 75 countries being reported as unchanged from 2006. It is clearly implausible that production should exactly match the sum of upward reserve revision and new discovery. There is also the problem of defining the boundary between *Conventional* and *Non-Conventional*: the Oil & Gas Journal reports Canadian reserves at 179 Gb whereas the equally respected World Oil reports 25 Gb (of which 20.7 Gb are attributed to tar sands). That said, the Oil & Gas Journal deserves every credit for its effort, as the task of assembling valid data becomes ever more difficult.

Regular Conventional Oil	
Production to 2100	Gb
PAST	1008
FUTURE	867
In known fields	724
To be found	143
DISCOVERED	1732
TOTAL	1875
Peak Date	2005
Peak Rate Mb/d	67.7
Decline Rate	2.76%

A first pass at an update of the depletion profile for *Regular Conventional Oil* suggests that production to the end of this Century is as shown in the table. It includes 18.75 Gb, described as *Unforeseen,* to deliver a rounded total of 1875 Gb, slightly down on last year's assessment of 1900 Gb. It will be subject to revision from further study, especially of certain Middle East countries, whose reporting is particularly unreliable.

Consumption is running at about 85 Mb/d, with the balance of 17 Mb/d coming from oils heavier than 17.5° API, polar and deepwater sources, Natural Gas Liquids from gas-plants, refinery gains, and storage changes. (Note that war-loss is production in the sense that it reduces the reserves by like amount, but is not normally recorded).

1000. Good Luck

The 1000th Item in this newsletter comes appropriately at the end of the year, providing a timely opportunity to wish its readers the best of luck in 2008 and during the ensuing Second Half of the Age of Oil. May their patience be rewarded.

Calendar - Forthcoming Conferences and Meetings

ASPO members and associates [shown in parenthesis] will be addressing the subject of Peak Oil at the following conferences and meetings. Information for inclusion in future newsletters is welcomed.

2008

Jan 30th – International Energy Network Seminar, **Dublin** [Campbell]

NOTE

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Multi-Science Publishing Co. (Sciencem@hotmail.com) wish to advise that copies of the book *Oil Crisis* by C.J.Campbell, providing background reading, are still available for purchase.