

**THE ASSOCIATION
FOR THE STUDY OF PEAK OIL AND GAS
“ASPO”**

NEWSLETTER No 54 –JUNE 2005

ASPO is a network of scientists, affiliated with European institutions and universities, 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.

The following countries are represented: Austria, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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 for Mankind.***

Newsletters: Future newsletters will be compiled under the auspices of ASPO IRELAND, which maintains a full and searchable archive of past issues at www.peakoil.ie . Foreign language editions are available as follows:

Spanish: www.crisisenergetica.org

French: www.oleocene.org (press “Newsletter”)

Any communications should be addressed to ASPO IRELAND at www.peakoil.ie

CONTENTS

- 549. Food Supply mirrors Oil Supply***
- 550. The Future of the United States***
- 551. Motor industry begins to crash***
- 552. Country Assessment – Brunei***
- 553. Executive Evasion***
- 554. Oil, Tax and Venezuela***
- 555. Home Heating***
- 556. ASPO International Workshop in Lisbon***
- 557. ASPO IRELAND***
- 558. Oil Depletion, Energy Waste, Debt and Capital Production***
- 559. Peak Oil in Australia***
- 560. Russia’s Petroleum Policy***

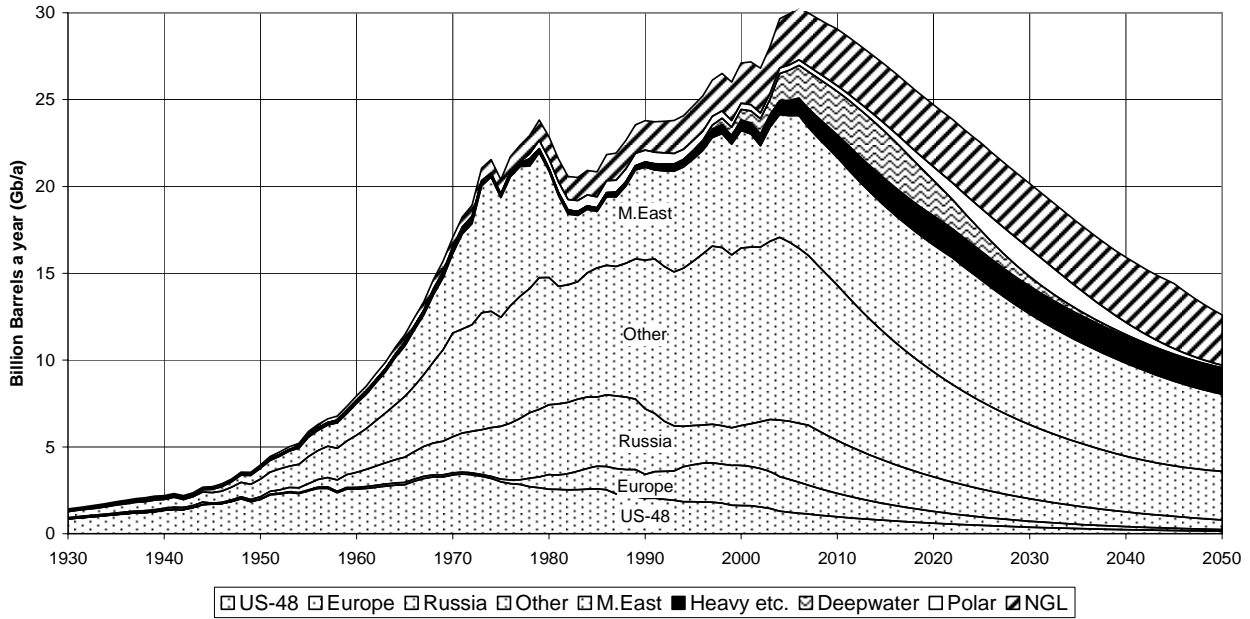
Calendar of Forthcoming Conferences and Meetings

Index of Country Assessments with Newsletter Reference

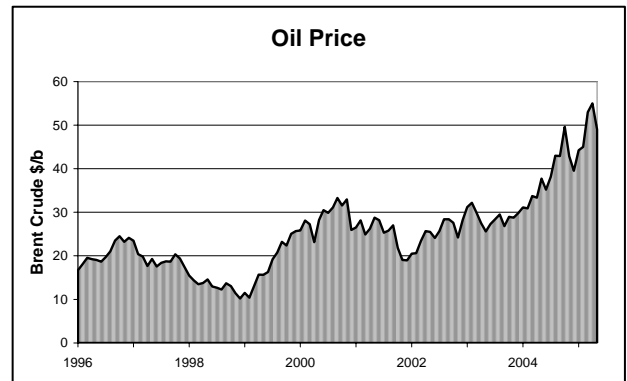
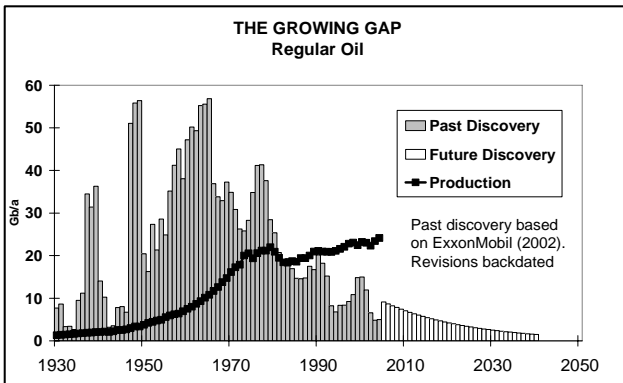
Abu Dhabi	42	Canada	48	Indonesia	18	Mexico	35	Trinidad	37
Algeria	41	China	40	Iran	32	Nigeria	27	Turkey	46
Angola	36	Colombia	19	Iraq	24	Norway	25	UK	20
Argentina	33	Denmark	47	Italy	43	Oman	39	USA	23
Australia	28	Ecuador	29	Kazakhstan	49	Peru	45	Venezuela	22
Azerbaijan	44	Egypt	30	Kuwait	38	Russia	31	Vietnam	53
Brasil	26	Gabon	50	Libya	34	S. Arabia	21		
Brunei	54	India	52	Malaysia	51	Syria	17		

The General Depletion Picture

OIL AND GAS LIQUIDS 2004 Scenario



ESTIMATED PRODUCTION TO 2100								End 2004	
Amount			Annual Rate - Regular Oil				Gb	Peak	
Regular Oil			Mb/d	2005	2010	2020	2050	Total	Date
Past	Future	Total	US-48	3.4	2.7	1.7	0.4	200	1972
Known Fields	New		Europe	5.2	3.6	1.8	0.3	75	2000
945	760	145	Russia	9.1	8	5.4	1.5	220	1987
	905		ME Gulf	20	20	20	12	680	1974
All Liquids			Other	28	25	17	8	675	2004
1040	1360	2400	World	66	59	46	22	1850	2006
2004 Base Scenario			Annual Rate - Other						
M.East producing at capacity (anomalous reporting corrected)			Heavy etc.	2.4	4	5	4	160	2021
<i>Regular Oil</i> excludes oil from coal, shale, bitumen, heavy, deepwater, polar & gasfield NGL			Deepwater	4.8	7	6	0	70	2014
Revised 26/01/2005			Polar	0.9	1	2	0	52	2030
			Gas Liquid	8.0	9	10	8	275	2027
			Rounding		0	2		-7	
			ALL	82	80	70	35	2400	2007



549. Food Supply mirrors Oil Supply

A new book entitled *Outgrowing the Earth* (ISBN 0-393-06070-5) by Lester Brown of the Earth Policy Institute presents a dire picture of declining food supply from rising temperature and the rapid depletion of water resources around the world. It draws particular attention to the decline of grain stocks and to the increasingly desperate position of China, as its water tables fall and deserts encroach. It takes a thousand tons of water to produce a ton of grain. Seventy percent of water supply is used for irrigation, twenty percent for industry and ten percent for residential use. Much of it comes from fossil aquifers that are subject to depletion. World trade in food is drying up as countries are increasingly forced to preserve agricultural produce for domestic consumption, partly by taxing exports in contravention of the principles of globalism. No doubt they will also soon adopt the same practice in relation to oil, as the realization of depletion becomes all too evident.

The World's population has grown in parallel with oil production to its present level of 6.4 billion, which is evidently not sustainable. It is hard to avoid the conclusion that this Century will see the population fall to close to pre-Oil Age levels as the oil and water reservoirs are depleted. Oil will be gone in its entirety but the rains will still fall to quench the thirst of the survivors and gradually re-charge the aquifers.

Most governments are driven by the precepts of classical economics which proclaim that supply must always meet demand in a properly functioning open market. They are accordingly unlikely to plan or prepare in any sensible fashion until cannibalism breaks out in their cities. Even that may not break the grip of this outdated mindset, as flat-earth economists will still be able to watch from their balconies pointing out that human flesh turned out to be a happy substitute for beef.

550. The Future of the United States

The United States has enjoyed an epoch of prosperity for two prime reasons. First, its oil endowment provided an abundant supply of cheap energy, and second, it escaped the devastation of two world wars. The British Empire with its control of the world trading currency, delivering a massive rent to the home country, was extinguished by the Second World War, allowing the United States to develop a new empire of economic hegemony based on the world dollar. The following article from no less than Austin, Texas, points to fears that the new empire may be heading for decline, as did its predecessors.

[From the "letters At 3AM" column in the Austin Chronicle, an alternative entertainment bi-weekly in Austin, Texas. Written by Michael Ventura]

America is over. America is like Wile E. Coyote after he's run out a few paces past the edge of the cliff – he'll take a few more steps in midair before he looks down. Then, when he sees that there's nothing under him, he'll fall. Many Americans suspect that they're running on thin air, but they haven't looked down yet. When they do ...

Former Federal Reserve Board Chairman Paul Volcker, a pillar of the Establishment with access to economic information beyond our reach, wrote recently: "Circumstances seem to me as dangerous and intractable as any I can remember. ... What really concerns me is that there seems to be so little willingness or capacity to do anything about it" (quoted in *The Economist*, April 16, p.12). Volcker chooses words carefully: "dangerous *and intractable*," "willingness *or capacity*." He's saying: The situation is probably beyond our powers to remedy.

Gas prices can only go up. Oil production is at or near peak capacity. The U.S. must compete for oil with China, the fastest-growing colossus in history. But the U.S. also must borrow \$2 billion a day to remain solvent, nearly half of that from China and her neighbors, while they supply most of our manufacturing ("Benson's Economic and Market Trends," quoted in *Asia Times Online*) – so we have no cards to play with China, even militarily. (You can't war with the bankers who finance your army and the factories that supply your stores.) China now determines oil demand, and the U.S. has no long-term way to influence prices. That means \$4 a gallon by next spring, and rising – \$5, then \$6, probably \$10 by 2010 or thereabouts. Their economy can afford it; ours can't. We may hobble along with more or less the same way of life for the next dollar or so of hikes, but at around \$4 America changes. Drastically.

The "exurbs" and the rural poor will feel it first and hardest. Exurbians moved to the farthest reaches of suburbia for cheap real estate, willing to drive at least an hour each way to work. Many live marginally now. What happens when their commute becomes prohibitively expensive, just as interest rates and inflation rise, while their property values plummet? Urban real estate will go up, so they won't be able to live near their jobs – and there's nowhere else to go. In addition, thanks to Congress' recent shameless activity, bankruptcy is no longer an option for many. What happens to these people? Exurb refugees. A modern Dust Bowl.

For the rural poor it's even worse. They are the poorest among us, with no assets and few skills; they earn the lowest nonimmigrant wages in America, and they *must* drive. When gas hits \$4, their already below-the-margin life will be unsustainable. They'll have no choice but to be refugees and join in the modern Dust Bowl migration. So, too, will people who live where people were never intended to live in such numbers – places like Phoenix and Vegas, unlivable without air conditioning and water transport (energy prices will rise across the board, regular brownouts, blackouts, and faucet-drips will be "the new normal" everywhere). In the desert cities, real estate will plunge, thousands will be ruined, most will leave – while all over the country folks will have to get used to "hot" and

"cold" again.

But where will the new refugees go, and what will they do when they get there? They will migrate to the more livable cities, where rents are already unreasonable and social services are already strained, and where the new refugees will compete with immigrants for the lowest-level housing and jobs. Immigration issues will intensify to hysteria. Native-born Americans will clamor for work that only legal and illegal aliens do now. In a culture as prone to violence as ours, that will probably get ugly.

Meanwhile, suburbs and cities will be in various states of chaos, depending on their infrastructure. As inflation and interest rates rise, and the real estate bubble bursts, millions will see their assets plunge precipitously. In five years, many who are now well-off will live as the marginal live today, while the marginal will sink into poverty. With gas at \$4-plus a gallon, real estate values will depend on nearness to working centers and access to transportation. As has already happened in Manhattan, the well-off will head for what are now slums, and the slum-dwellers will go God-knows-where. Places with decent rail service will be prime. Places without rail service will be in deep trouble.

One key to America's future will be: How quickly can we build or rebuild heavy and light rail? And where will we get the money to do it? Railroads are the cheapest transport, the easiest to sustain, and the only solution to a post-automobile America. (For reasons I haven't space to detail, hybrid cars and alternative energy won't cut it, if by "cut it" one means retaining anything like the present standard of living. See James Howard Kunstler's "The Long Emergency" on *Rolling Stone's* Web site. Also check Mike Ruppert's site www.fromthewilderness.com and the documentary *The End of Suburbia*.) A massive investment in railroad infrastructure could offer jobs to the unskilled and skilled alike, absorb much of the inevitable population displacement, and create a new social equilibrium 10 or 15 years down the line. Old RR cities like Grand Junction, Colo.; Amarillo, Texas; and Albuquerque, N.M., could become vital centers, offering new lives for the displaced. Railroads are key, but the question is: how to finance them?

There's only one section of our economy that has that kind of money: the military budget. The U.S. now spends more on its military than all other nations combined. A sane transit to a post-automobile America will require a massive shift from military to infrastructure spending. That shift would be supported by our bankers in China and Europe (that is, they would continue to finance our debt) because it's in their interests that we regain economic viability. What's *not* in their interests is that we remain a military superpower.

And that's where things get really interesting. The question becomes:

Can America face reality? If the government responds to the coming changes by attempting to remain a superpower no matter what, there is no way to underestimate the harm. The numbers speak for themselves. Soon we'll no longer have the resources to remain a military superpower *and* sustain a livable society that is anything like what we know today. It happened to England; it happened to Russia; it's about to happen to us. England sustained the transformation more or less gracefully; it lost its dominance while retaining its essential character. Russia is still in a period of transformation, but has remained a player thanks to its oil reserves. Europe in general – France, Germany, Italy, and Spain (all world powers in the fairly recent past) – is creating a post-national society, the most experimental form of governance since America's revolution. We have no appreciable oil, and we no longer have a manufacturing base. So what will the United States do? Sanely recognize its declining status and act accordingly, or make one last ignoble stab to retain its position by force?

Half a century ago James Baldwin wrote: "Confronted with the impossibility of remaining faithful to one's beliefs, and the equal impossibility of becoming free of them, one can be driven to the most inhuman excesses." Americans believe they're "No. 1," destined to lead the world. That is the America that's over. If we insist on that illusion, then this world is in for tough times. We will neither hold on to what we have nor create what we might have, but we *will* wreak untold harm (if we don't destroy the species altogether). Or we can face and embrace reality. And that reality is: There is no such thing as "No. 1" ... there is no such thing as an ideal destined country that is better than any other ... there is only us, doing the best we can, trying to live free and sanely, within limits that are about to become only too clear. Our glory days are done. What's next?

Remember, we're not talking about the far future. We're talking about the next decade.

No country gets two centuries anymore. The 21st will be China's century. That's what \$4-plus a gallon means, and nothing can stop it. So: How will we change? But the question "How will we change?" is really the question "How will *I* change?" Because history isn't a spectator sport. It's you and me. Everything depends on whether we side with reality or illusion. Face reality, and we have a chance. Cling to illusion, and we are lost. The America we've known is over – very soon. The America we can create is up to us.

551. Motor industry begins to crash

The motor industry seems to have run into trouble in recent weeks. The Rover Company, once Britain's flagship manufacturer, has failed, having been unable to persuade even the Chinese to take it over. Across the Atlantic, both General Motors and Ford are in serious trouble, seeing their credit rating slump in the face of mammoth debt. It could be that consumers, waking up to Peak Oil, have come to realise that large private cars belong to the past. The collapse of the motor industry may well be the first sign of a new depression, triggered by the realisation that collateral for current debt will be undermined as both falling energy supply and rising energy costs remove confidence in economic growth which effectively constitutes the collateral.

552. Country Assessment – Brunei

Brunei is a small independent State on the north coast of Borneo, covering an area of 5700 km² and supporting a population of 400 000. It also has sovereignty to extensive tracts of the prospective adjoining South China Sea. The mighty Baram River, which drains the interior of Borneo, marks its western boundary, while Brunei Bay in the east forms a natural harbour. Brunei's early history is obscure, but by the Middle Ages, it had come under the influence of the kingdom of Java. The Portuguese explorer, Magellan, anchored in Brunei Bay in 1521 when the Sultan of Brunei had dominion over most of Borneo as well as several other islands of what is now Indonesia.

His empire subsequently declined due to internal conflicts, and in 1841, his successor had to appeal to Sir James Brooke, a British adventurer who had arrived in Borneo waters in a warship, to help put down a native rising. He not only put down the rising, but managed to take possession of most of the territory which became Sarawak. He ran it as a personal estate, being known as the White Rajah of Sarawak. The poor Sultan was left with no more than a small enclave, known as Brunei, but by an ironic twist of fate it turned out to be the richest part of territory having prolific oil deposits.

Brunei became a British Protectorate in 1888 with the Sultan becoming little more than a figurehead. It was occupied, along with the rest of Borneo, by the Japanese in the Second World War, being liberated in 1945 by British forces. The ensuing years saw a gradual transfer of power from the British Crown to the Sultan and an elected Legislative Council, as oil wealth began to flow into the territory. It became a fully independent Islamic Sultanate in 1984, being recognised by Britain, Malaysia and Indonesia.

In geological terms, Brunei lies on the northwestern flank of the Borneo Geosyncline, which is made up of a series of progressively younger Tertiary basins flanking a Cretaceous core, which is made up largely of submarine volcanic and siliceous rocks. The sequences become progressively less deformed towards the coast, where are to be found gently folded Mio-Pliocene strata, offering traps for oil generated lower in the Tertiary sequence.

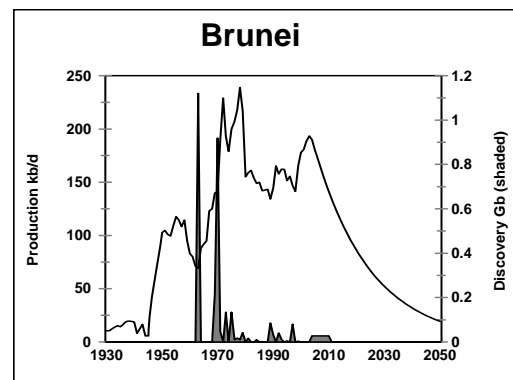
Shell took up rights in the territory and adjoining parts of Sarawak in the early years of the last Century, having been encouraged by the occurrences of oil seepages. Exploration was rewarded by the discovery of the Miri Field in Sarawak in 1910, to be followed in 1928 by the giant Seria Field in Brunei, with about 1.3 Gb. The offshore was opened during the 1960s and 1970s, yielding two early giant fields: Ampa SW in 1963 and Champion in 1969, each holding about a billion barrels each. They were in turn followed by a series of smaller fields in the 100-200 Mb range (Iron Duke, Fairley, Magpie), as well as some gas finds. A total of 160 wildcats have been drilled, finding about 4.4 Gb of oil, of which 3.1 Gb have been produced. In addition, some 23 Tcf of gas has been found, of which about 12 Tcf have been produced. Exploration is now at a very mature stage, such that future oil discovery, apart from whatever the deepwater may yield, is unlikely to exceed about 150 Mb.

Production commenced in 1929 yielding a series of peaks as the different fields were opened up. The first came in 1956 at 115 kb/d; the second in 1978 at 239 kb/d ; and the third is now close, with production in 2004 standing at 190 kb/d. The midpoint of depletion was passed in 1989, suggesting the production is now set to decline at the current depletion rate of 4.8% a year. Consumption stands at no more than 13 kb/d, albeit at a high per-capita level of 16 b/a, meaning that the country can continue to support exports for many years to come. A pioneer gas-to-liquids plant was constructed at Bintulu, adding to its capacity.

The massive oil and gas revenues flowing into the country have made the Sultan one of the world's richest men. His subjects do not fare badly either. The State clearly has a golden future if it can defend its

BRUNEI		<i>Regular Oil</i>
Population M		0.4
Rates Mb/d		
Consumption	2004	0.13
per capita b/a		15.8
Production	2004	0.19
	Forecast 2010	0.14
	Forecast 2020	0.09
Discovery 5-yr average Gb		0.003
Amounts Gb		
Past Production		3.14
Reported <i>Proved Reserves*</i>		1.35
Future Production - total		1.36
	From Known Fields	1.23
	From New Fields	0.14
Past and Future Production		4.5
Current Depletion Rate		4.8%
Depletion Midpoint Date		1989
Peak Discovery Date		1929
Peak Production Date		1978

*Oil & Gas Journal



independence, which may become increasingly difficult as Malaysia faces increasing economic difficulties during the Second Half of the Age of Oil. It is never easy to be a rich man in a crowd of beggars.

553. Executive Evasion

World Energy (vol. 8 no. 1) carries a series of articles by the Chief Executives of the major oil companies. They stress the importance of oil companies in providing the essential fuels and raw materials for the modern world; their technological excellence; their deep concern for the environment; and their deep sense of responsibility. Yet they do speak of the magnitude of the challenge they face in meeting anticipated demand, rejecting any sense of fatalism. They try valiantly to convey a positive attitude as befits their position, but their tone lacks conviction.

The words of one of them are particularly telling. He opens by extolling the profit motive and ends by stating that he finds it exciting to try to make possible what seems impossible, adding that his *first task* is to "tell the truth" – the choice of the word *task* carrying the implication that it is not always easy to do so. In between, he makes the misleading statement that "*There is no shortage of resources. From Proven Reserves alone, current levels of world demand can be met for at least 40 years in the case of oil, and at least 65 years in the case of natural gas*". While it is true that reported oil reserves stand at about forty times annual production, it is absurd to imply that production can stay constant from 40 years and then stop dead, when all oilfields are subject to decline during the latter part of their lives. Admittedly, doing the impossible is one of his stated strengths.

The executives could have been more forthright, revealing, for example, just how much their companies have actually found in recent years, which by extrapolation could indicate what they can expect to find and produce in the future. Their own production is faltering as they pass their individual peaks. Given that they have indeed been deploying the highest level of technological excellence which has enabled them to successfully produce oil in extremely deep water and map with great accuracy the smallest and most subtle geological prospects, it follows that they are already at the cutting edge, such that little more can be expected from still further technological progress. There is an irony about depleting a finite resource : *the better you do the job; the sooner it ends.*

Reference furnished by Walter Younquist)

554. Oil, Tax and Venezuela

It is well said that exploration rests a pillar of tax deduction. Most countries allow exploration and operating costs to be treated as deductible from taxable income as a form of subsidy. In many cases, they even accept allocated home and regional office expenses complete with overheads. Debt, amortisation, depletion allowance and inter-affiliate transactions are other elements for favourable tax treatment. Double taxation treaties offer still more scope for writing off tax in one country against another's. Countries with high marginal tax rates offer the best incentives for exploration: in Norway, for example, some companies were spending ten cent dollars.

The following articles suggest that President Chavez of Venezuela is waking up to the distortions of tax. He is probably unjustified in accusing the companies of tax evasion as such, as the rules are already so lenient. More interesting still is his expression of concern about Venezuela's dollar holdings, which have evidently risen with high oil prices. In fact, Venezuela is extraordinarily well placed to face the economic conditions of the Second Half of the Age of Oil with abundant reserves and a relatively small population of no more than 26 million. The Venezuelan Bolivar should accordingly be a good reserve currency for others to hold.

Oil producers: World facing energy crisis

The world is about to face an energy crisis because the demand for oil keeps growing even though production is already at its maximum, Venezuelan President Hugo Chavez said yesterday.

Chavez, whose country is the world's fifth largest crude oil exporter, said that all OPEC members were "producing at full steam". "There's a worldwide energy crisis around the corner," Chavez told reporters at the end of the first Summit of South American-Arab Countries in Brazil.

"Especially because the US and other developed countries, but more so the US, have built a way of life based on the wasteful consumption of oil, which is non-renewable."

Representatives of eight of the 11 OPEC members were present at the summit, which did not have energy on its official agenda. "We are producing at maximum capacity," he said, adding that non-OPEC members such as Russia and the US were doing the same.

Leaders and high-ranking government officials from 12 South American and 22 Arab countries ended the summit yesterday with a commitment for closer political and economic ties, while also staking out positions at odds with US policy on several fronts.

Venezuela to investigate oil companies

ALICE M. CHACON - ASSOCIATED PRESS WRITER

CARACAS, Venezuela -- Venezuelan President Hugo Chavez said Sunday that foreign oil companies working in the country must pay taxes he insists they owe the country, or else leave the country.

"The companies must pay what they owe," Chavez said during his Sunday television and radio show. "If they don't pay, they must leave," he added.

Chavez said that many private companies producing oil in the country have been evading taxes for years. Tax officials have said that many declare losses to avoid paying income tax. Chavez said that they must be charged retroactively. The government will charge "everything they owe retroactively, along with the interests of what they didn't pay," he said.

"It's not possible that an oil company can come here, pay 1 percent royalty and not pay income tax, and still declare losses," he said.

According to Venezuelan law, oil companies must pay 30 percent royalty, but companies producing heavy crude - which is expensive to produce - were allowed to pay 1 percent royalty until last year, when the government raised it to 16 percent. "All oil production gives earnings," he added.

Venezuelan lawmakers will investigate international oil companies accused of evading taxes and other charges, said the National Assembly president Nicolas Maduro late Saturday according to the state-run Bolivarian News Agency.

Lawmakers expect to find evidence of tax evasion, royalty debts, production over the limit set by the government and irreversible damage to some wells, Maduro, a pro-government lawmaker, was quoted as saying. Maduro said top officials of the state-run oil company Petroleos de Venezuela, who negotiated agreements with foreign oil companies in the mid 1990s, would be questioned in the investigations. Foreign firms will be made to pay damages if evidence against them is found, Maduro added.

Venezuela opened its oil industry to foreign oil companies in the 1990s. During that time, 32 operating agreements were signed with companies like ChevronTexaco, British Petroleum, Total, Petrobras, Repsol YPF, Royal Dutch Shell and the China National Petroleum Corp.

Oil Minister Rafael Ramirez said last month that many of these companies have evaded taxes for an estimated total of \$2 billion. Venezuela is the world's fifth oil exporter and government officials say it produces over 3 million barrels a day. But analysts and international agencies say the amount is closer to 2.6 million.

Chavez said that Venezuelan lawmakers should work to approve a law the government to use money from the country's international reserves for government projects. He has proposed that there should be a limit to the amount of the reserves, which should be between \$18 billion and \$20 billion. Currently reserves are over \$27 billion due to high oil revenues, Chavez said. "We are at almost \$28 billion in international reserves. That is too much money to have it kept away, and in banks in the north (the United States), because we don't have it here," he added.

Under current Venezuelan law, only the Central Bank has access to the reserves. Central Bank directors say that using the reserves for government programs would undermine Venezuela's bolivar currency and harm the country's standing in international financial markets.

(Reference furnished by William Tamblyn)

555. Home Heating

Great progress is being made, especially in Scandinavia and Austria, with the introduction of wood pellets for home heating. The pellets are compressed sawdust, about the size of a cigarette but, which can flow automatically from storage tanks into stoves. The saw dust is mainly gathered from the waste product of saw mills, but can also come from dedicated forestry. It is highly efficient and non-polluting, and the net-energy yield is good, especially where it is based on waste product. Units are now being constructed with combined solar panels to provide not only domestic heat but electrical power.

556. ASPO International Workshop in Lisbon

More than 300 participants took part in a successful ASPO Conference in Lisbon on May 19th - 20th. Many journalists and ten film crews covered the event. In addition to a range of scientific papers covering the technical and economic aspects of oil and gas depletion, particular attention focused on the social, environmental and political consequences. A panel of senior politicians addressed the proposed Depletion Protocol, seeing it as a sensible method for managing the transition to decline so as to avoid profiteering and resource wars.

It is planned to publish the proceedings (contact: aspo2005@uevora.pt for information)

A major political institution, representing some 400 million people, has tentatively offered to host the next annual conference, the details of which will be announced in due course.

557. ASPO IRELAND

ASPO is a network of scientists in universities and government departments, now representing most European countries. It is now evolving to encourage the development of independent national organisations operating within their own resources and spheres of interest, yet maintaining common links.

ASPO IRELAND has been established under this structure, and has commenced work on developing a comprehensive oil and gas database and a new website www.peakoil.ie where can be found a searchable catalogue of all previous Newsletter items, to which will be added country and region depletion profiles and other material.

This Newsletter, which now has a direct readership of more than 1500, being also reproduced on several websites, including Spanish and French language editions, will in future be produced under the auspices of ASPO IRELAND

558. Oil Depletion, Energy Waste, Debt and Capital Production by Marc Gauvin

(A Good News Approach) (Copyright 2002 all rights reserved)

“The world promises to be connected in a network whereby each node (individual) becomes the cause of the whole fabric. Like a knitted sweater where every stitch represents the health of the whole fabric, concentration in maintaining each node will become the mainstay of the new paradigm.”

“The probability of success of an option is only relevant when you have more than one option. If you only have one option then just go for it!”

Introduction

We all frown on waste, criticize knee jerk consumerism, and claim to embrace the wisdom inherent in protecting the environment. However, there is something about us or some quasi hidden principle that governs our behaviour such that we do not lead the peaceful and meaningful lives we could, we do not distribute wealth optimally even after the rich have more than their fill and we are destroying the environment recklessly.

There is something pathological a sort of collective autism inherent in our ‘civilization’ that prevents the manifestation of the obvious, that which no one would dare declare publicly as undesirable, yet it never gets accomplished. Presently, and in the first world we have lost any notion of what the essentials are and recklessly pursue a moving target of ever increasing excesses.

Money Creation

It so happens that in the conventional money system and this includes all systems that operate on fractional reserve banking, each and every time a bank makes a loan i.e. private consumer or mortgage loans, brand new money is created. This is more than reasonable, in so much as new (liability free) wealth needs not any previous wealth in order to write a receipt against. That is to say, the only tap of new money is the lending process, which is fine provided that the amount owed is equal to the amount created, which unfortunately is not the case.

Why? Because debt grows all by itself and a lot faster than the corresponding money created as principle and that was put into circulation.

Simply put, the interest portion of our debt was never created or received by anyone. So, the interest portion of debt leads to an un-payable sum that grows over time, such that at all time there remains an un-payable portion. This is key, since if this is true we can make a very simple model of the system as follows:

Ten borrow 10 units each; remember the money borrowed is created the instant it is registered as debt.

So $10 \times 10 = 100$ units in circulation backed by the collateral of each of the ten, say ten houses (one each).

Each borrower promises to pay back 11. Thus the debt is $10 \times 11 = 110$. But they only received 100! So the best case scenario is that nine manage to payback 11, that is $9 \times 11 = 99$, and the tenth loses and has his house seized. This is literally the game we are all playing as we speak.

Note that there are two outs to the problem. First is the obvious solution of making sure you pay your loan before the others do, the second backup solution is that you increase the value of your collateral. For example, if the bank lends you money against a factory that produces 1000 units, and at the time that the loan is due your factory produces 2000 units then the bank can justify lending you more instead of foreclosing and seizing the factory.

Note that since the debt in its totality is not payable in full, this last resort is not optional and it is for this reason that I contend that the irrational practically autistic tendency to increase production for the sake of production instead of to meet and satisfy real needs and wants, is fuelled by the growth component of debt.

Oil depletion, waste, debt and capital production

Essentially, Oil depletion is about the inevitable decline of a limited resource. What is of particular interest to us today, is that we are at the half way point, the point of maximum extraction, the point where the rate of extraction in the future can never be higher. Not only will it never be higher than now it will fall faster and faster.

Example:

Imagine that you are sucking liquid from a glass through a straw, it so happens that as you suck the liquid from the glass when you reach maximum rate of extraction you will find that you have consumed half the liquid in the glass. From this half way point, the effort to extract begins to increase geometrically so that the rate of extraction diminishes, that is the amount of liquid being sucked through the straw per second begins to fall faster and faster, until you are beat red sucking on the last drop with all your might and to no avail.

It is ludicrous to believe that given the increasing rate of demand for energy, our present dependence on 80 + million barrels per day (bpd) can be reduced. If we add to this the reality of the world reaching maximum extraction rate within this decade (if we haven't already reached it), it becomes clear that we are going to experience a forced and probably abrupt decline in supply of oil and consequently of energy. This reduction, will force decreases in energy consumption across the board. However, if we can accept that we need to reduce consumption of energy, then we must analyse what is it in our behaviour that prevents us from adopting a more rational and frugal use of such a valuable commodity. It is the author's conviction that the primary cause of what he labels 'autistic societal behaviour' is exponential growth of debt that effectively converts money into a powerful social control tool, more powerful than any other known narcotic.

The Solution

The following analysis illustrates that if we are truly at maximum extraction rate, we have to do something about the growth of debt as it alone induces a vast amount of waste we clearly cannot afford.

The path is to make the direct causal link between the following curves as they relate to production.

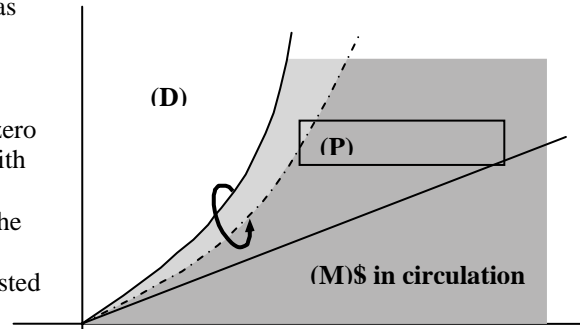
(M) The money curve is the amount created and put into circulation, it is of least growth.

(D) The debt curve is the fastest growing curve.

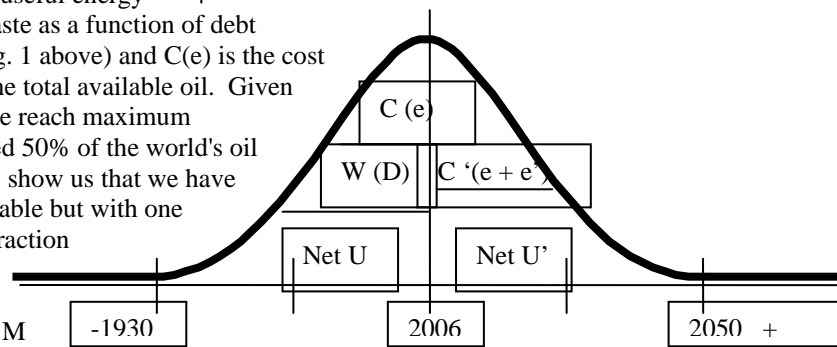
(P) The production curve is in between the two as part of increased

production allows for refinancing unpaid debt.

In Fig. 1 we see that D forces production to always increase exponentially, while if we had zero interest, production would mirror need only. With interest, we artificially boost need beyond what otherwise we would settle for. So we can label the production achieved under interest $P = P' + M$, where $P - M = P'$ or the minimum amount of wasted energy W (D) in Fig. 2.



In Fig. 2 we see that Net U is the useful energy extracted in the past, W (D) is the waste as a function of debt corresponding to P' ($P' = P - M$ see Fig. 1 above) and $C(e)$ is the cost in energy to extract the first half of the total available oil. Given the principle that asserts that when we reach maximum extraction rate we will have consumed 50% of the world's oil stocks, and all reasonable indications show us that we have reached it already, then, 50% is available but with one new pressure taxing it: 1) Higher extraction costs $C(e + e') > C(e)$.



But, remember that the debt curve (D in Fig.1) infects both P and M

curves such that we can only know the real level of waste by eliminating the growth component of the D curve and discovering what % of the remaining part of the total available oil is required to meet our real needs without destroying our well being or quality of life i.e. the net minimum oil for maintaining a useful existence).

Figures 1 and 2 illustrate that the possible good news is that if the waste as a function of exponential debt is greater than the extra energy cost of extracting the remaining available stock, then hopefully, Net (U') i.e. future net useful energy is greater than the Net (U) past useful energy consumption. Thus, we may very well be able to provide the world a century of peaceful oil consumption providing all regions of the world a standard worth living. This while we gradually reduce population and develop sustainable alternative energy and lifestyles that are rewarding and worthwhile. However, the key is the elimination of the source of waste W (D).

Conclusion and Summary

First let's review the situation:

1. We have as much oil as we did last century, and we know that a large amount of it has been wasted due to our self inflicted requirement to either pay the bank more than what they created and put into circulation or increase our collateral base to compensate for the inevitable deficit. Since as shown, we cannot pay both principle + interest, then we are forced into increasing our collateral base as a function of interest. Since the interest function is exponential, our production becomes exponential and persists beyond either need and/or want, hence we produce tremendous waste.
2. If we eliminate the interest on debt, then we eliminate a large quantity of waste i.e. the waste we produce only to satisfy debt rather than need and desire.
3. Since it is very likely that we are at maximum extraction rate now, there is a good chance that the extra cost of extracting the second half of the world's oil is less than the wastage of the last century.
4. Hopefully, that difference will suffice to allow us to provide real needs to the whole globe and yes it is very likely that the wastage under usury is that great.
5. Thus there is still hope for a simpler lifestyle with less stress, a stable money system, community and security with access to abundant knowledge and time for fulfilling self development.

6. We have the chance of living real lives of wonder instead of being continually under a cloud of fear, doubt, half truths.

(Reproduction and distribution in whole is expressly permitted, right to quote or exploit economically only after prior consent of the author)

559. Peak Oil in Australia

Bruce Robinson writes:

The Australian Petroleum Production and Exploration Association, the prime industry group in Australia, held its annual conference in Perth in mid April (www.appea.com.au). Some 1700 people attended. A highlight was the increasing awareness of oil depletion.

The first keynote speaker, futurist Anni MacBeth, gave an entertaining and thought provoking talk (www.annimac.com.au/presenting.htm) which included generational and global changes, and a number of graphs about "The Big Rollover" using Les Magoon's term for peak oil. She also included Chris Skrebowski's denial and "three monkeys analogies", Zittel's North Sea field-by field graph and a version of Bakhtiari's Noah analogy. "Noah built before it rained. Forecast Floods".

Peter McCabe presented the USGS global reserve estimates in an interesting talk. *"There is a finite amount of oil in the world but considerably more than the neo-malthusian pessimists would have us believe"*. He showed examples of past production forecasts being proven wrong, in Australia, US and Canada, but did not give any forecasts of future production himself, only reserves.

He did make some interesting points. *"The global peak is determined by the interaction of supply and demand. No reason why the curve should be symmetrical"*.

[This is straightforward, but I took it to include the probability of an early peak and a long decline tail, not logically different from the ASPO peak forecasts].

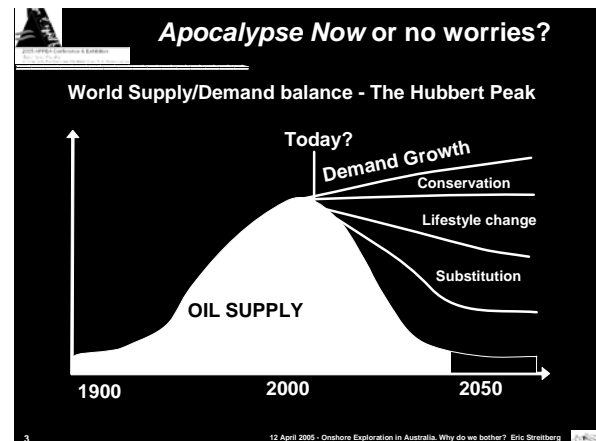
McCabe also showed the age structure of the population of oil producing countries. The median age of the OPEC countries is generally very low, much lower than those of the oil consuming countries. He said the average age of the populations at the time of the American and French revolutions was 16. Those of Iraq, Iran and Saudi Arabia are not much higher. He also superimposed a map of the Gulf of Mexico on southern Australia, showing a similarity in size, but a substantial difference in the degree of exploration. Without implying any geological similarities, he suggested that there is a lot of scope for further discovery in Australia in frontier basins.

Eric Streitberg, Executive Director of ARC Energy a successful small onshore producer, showed a slide of Swenson's post-peak scenarios (www.hubbertpeak.com/scenario.htm). Streitberg's graph showed us just past the peak.

Interestingly, he conducted a straw poll, of the 1,000 or so petroleum professionals present.

"Please put your hand up if you think that we have crossed the Hubbert Peak and we are entering a demand driven pricing era, and hands up those who don't?" Streitberg scored it 50:50 at the time and said *"The rest of you who didn't put your hands up had better talk to your management consultants about a course in decision making"*.

Streitberg also showed the inflation-adjusted US DOE future price estimate graphs, which are now proven far too high from 1980 to 1987, and much too low since then. The 1987 estimate is closest to the mark today



560. Russia's Petroleum Policy

Whether by design or not, Russia seems to be adopting a sensible policy to conserve its oil and gas resources and slow the rate of depletion. In part, this is being achieved by a tax regime that penalizes exports, while holding down domestic energy costs. Production is not accordingly expected to increase significantly in the years ahead. In most countries, exploration is effectively subsidized under the tax regime whereby its cost is allowed as a charge against taxable income. The Russian regime may not provide this happy facility making it difficult for foreign companies to operate profitably in the country, although double taxation treaties may allow them some write-off against home country tax. Russia's consumption stands about 2.3 Mb/d compared with production at 6.4 Mb/d meaning that it has no pressing need to invest in exploration for domestic needs, thereby conserving its resources for the future.

The situation in the other countries of the former Soviet Union is more obscure. It seems the United States has been funding various moves towards so-called democracy, presumably in the hope that such

governments would provide a favourable climate for foreign companies and financial institutions seeking to export produce and profit, and burden the country with foreign debt.

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:

June 18-19th - Permaculture Conference, **Kinsale, Ireland** [Campbell]

June 22nd - 2nd European Solar Thermal Energy Conference, **Freiberg**, Germany [Gilbert]

June 22-25th - Fourth Forum for Debate, **Salamanca, Spain** [Alekklett]

July 3-4 - Renewable Energy Conference. **Ljubljana, Slovenia** [Zagar, Gilbert]

Sept. 23-25 Second U.S. Conference on Peak Oil and Community Solutions, Yellow Springs, Ohio

October 28-30th - Pio Manzu Energy Conference, **Rimini, Italy** [Campbell]

[Information on future events for inclusion in the Calendar is welcomed]

Note

As a result of changed circumstances, the Newsletter will in future be distributed by ASPO IRELAND. We take the opportunity to express our gratitude to Rory O'Byrne and Arne Raabe for their past valuable contributions in this respect.

Permission to reproduce the Newsletter, with acknowledgement, is expressly granted.

Compiled by C.J.Campbell, Staball Hill, Ballydehob, Co. Cork, Ireland