The Oil Drum: Europe
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Russia: There Is Life After Peak Oil

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Suburbs of Moscow, July 2008. You don't have to be able to read Cyrillic to understand the red sign (photo by the author).

Russia has changed beyond recognition from the dull times of the years after the fall of the Soviet Union, when I heard it described by an American acquaintance as "the most foreign country I

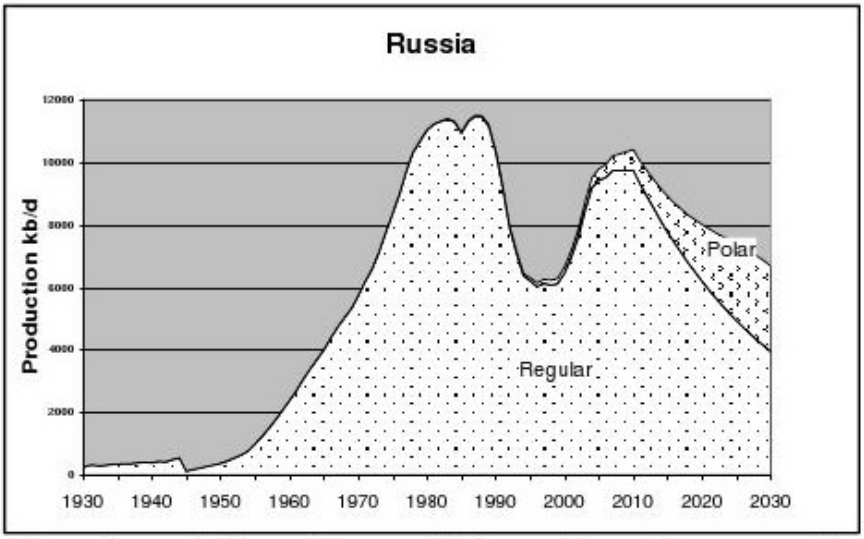
know". At that time, Moscow was a grey city covered in dirty snow. It had no shop windows, few lights, no restaurants outside those of the hotels. Walking along the streets, you would see people dressed in black, looking like they had nothing to do. There were plenty of beggars and of drunken men staggering along.

Things have been gradually changing. This July, I have been back to Moscow for a week and I found a city full of flowers and with shops, restaurants, malls, and everything that you expect to see in European cities. The traffic is heavy; the old Ladas are still there, but there are plenty of new cars, including SUVs. Beggars have disappeared, a few drunkards can still be seen, but the city is full of young people evidently in good health, well dressed, and looking happy. The cities around Moscow that I saw during my trip don't look so shiny, but it is clear that the wealth that has concentrated in Moscow is gradually spilling out to the rest of Russia. According to Wikipedia, Russia is now the 7th country in the world in terms of GDP adjusted for parity purchasing power. In 2006 the average monthly Russian salary was equivalent to $640 and by now it is surely much more than that. It would be still hard to define Russia a rich country, but the trends are unmistakable.

The standard explanation for the present wealth of Russia is that it has embraced capitalism, leaving behind the obsolete and inefficient ways of Soviet communism. It may be, but the real explanation may have to do with oil. On this point, a common legend says that the West engineered the fall of the Soviet Union in the mid-1980s, when Saudi Arabia could be convinced to inundate the market with cheap oil and cause the oil price to crash. That badly hit the profits that the Soviets were making by exporting their oil to the West.

As for many legends, also this one has a basis of truth. After the first world oil crisis that had peaked in the late 1970s, Saudi Arabia and the European countries facing the North Sea world had invested enormous sums in developing new fields. In the mid 1980s. these fields had started producing and nothing could prevent oil prices to fall down as the result. The price crash wasn't engineering on purpose against the Soviet Union, but the effect was the same. The Soviet Union, at that time, was engaged in a costly war in Afghanistan and also needed to import grain from the West; and pay for it in dollars. Short of cash and on the brink of starvation, the Soviet Union simply couldn't survive. It went bankrupt and disappeared.

But the fall of the world oil prices was not the only problem that the Soviets were facing. Also their internal oil production was in troubles. As we can see in the following graph, a first oil production peak for the Soviet Union took place in 1987 (figure from ASPO, www.peakoil.net).



Again, the standard explanation here is that oil production declined because of the fall of the

Soviet Union. However, we may also argue that the opposite is true; that it was the peak that brought down the Soviet Union. This view has been convincingly argued by Douglas Reynolds and Marek Kolodziej. For instance, see this statement by Reynolds at the energy bulletin:

> The Soviet Union experienced peak oil first hand—a 43% decline in domestic oil production between 1987 and 1996. This crisis caused Soviet society to fall into devastating economic impoverishment. Can this be proven? Yes. Here is the quick story: The oil decline in the Soviet Union preceded the GDP decline. A statistical test, Granger causality, shows this. Oil decline did not follow the GDP decline, it was ahead of it, and therefore it caused it.

For more details on this interpretation, see the two papers by Douglas Reynolds and Marek Kolodziej listed at the end of this post. In short, the Soviet Union was a victim of its internal peak oil, whose effects were amplified by other factors, such as the Afghan war, the drop in international oil prices, and the need for Soviet countries of importing food from abroad.

If this explanation is correct, and I believe it is, Russia has pulled off a major feat in recovering from peak oil. A feat comparable to that of turning back the German invasion during the second world war, or that of Napoleon in 19th century. Indeed, everyone knows that invading Russia, especially in winter, is never a good idea. Peak oil, however, was a different kind of enemy, one that could not be beaten using armies and enlisting "General Winter" to help. How did the Russians manage to find life after peak oil?

There are various explanations for the rebounding of the Russian oil production. Some have to do with factors such as the poor management of wells in Soviet times or the higher willingness of Russian entrepreneurs to take risks in a free market situation. Personally, I favour the interpretation that the recovery was possible because the Russian society was able to cut deeply in the bloated government expenses of Soviet times; mainly the army and the hypertrophic bureaucracy. The resources saved from these sectors could be invested in more exploration and in upgrading existing wells. With more effort, more equipment, and more drilling, oil could again flow out in increasing amounts.

If this is the case, victory against peak oil needed tremendous sacrifices from the Russian people, just as it was the case for the victories against Napoleon's and Hitler's armies. Indeed, the misery of the post peak times is well told by Dimitri Orlov in his book "Reinventing Collapse" and in his blog cluborlov . We learn from Orlov of the nearly complete collapse of most of the sectors of the Russian society. Government employees, most of the population, suddenly found their saving worthless, their salaries reduced to nearly zero, or to actually zero. For years, survival was possible mainly because of the food produced in small, private vegetable gardens, a heritage of the mismanaged food distribution system of Soviet times.

My personal experience in Russia in those years is in complete agreement with Orlov's report. I came to know very well the situation of my colleagues working in universities and research institutes. During my visit, I was told that the number of researchers in Russia has been approximately halved since the times of the Soviet Union, from about 200,000 to 100,000, you can have some idea of what kind of "creative destruction" the Russian society went through. Except that it wasn't so creative. Entire research institutes were abandoned and later transformed into office buildings or shopping malls. Researchers had to be creative in order to survive. Those who could, moved to Western Europe or to the US; others turned janitors or bodyguards. Others clung to their jobs trying to do the best they could with the limited - or non existing - resources available. This experience, incidentally, has made me perfectly aware of what is in store for me as a scientific researcher in a not too far future. The difference is that I won't have a West to move to.

Now, with market prices going up again, Russian oil has become immensely more valuable than it used to be at the time of the fall of the Soviet Union. The revenues in foreign currency could be used to rebuild the Russian economic infrastructure. The salaries of scientific researchers are back and even the Russian army has regained its former status of world power, as the recent events in Georgia show.

But, no matter how much effort is placed in revitalizing old wells, the amount of oil available remains physically limited. Russia's oil production may have peaked a second time in 2008, as reported in the Financial Times.

Even with the second peak arriving, Russia may not be facing a second collapse. The first peak combined all the possible problems: decline of world prices, expensive wars ongoing, and the need of importing food from the West. Now, these conditions are reversed or much less important. For instance, Russia, a top grain importer at the times of the Soviet Union, seems to be now self sufficient in terms of cereal production . So, if Russia can avoid a drastic fall in oil production, for the coming years it can have sufficient oil for its internal needs and still obtain a good revenue from exports in a market that is likely to become more and more desperate for oil supplies. Short term perspectives look bright for Russia.

And in the long run? The second oil peak is likely to be the final one. This time, another economic contraction such as the one of the 1990s wouldn't be enough to revitalize the old wells once again. Russia has also to worry about climate change: while it might mean that Russians can save on fur coats and hats, global warming may spell disaster for those Russian cities built mostly on permafrost. But Russia in the coming years has a window of opportunity to invest in an energy infrastructure that is not based on fossil fuels, a window that is probably closing or already closed for most Western countries.

The Russians have a still functioning nuclear industry. Russia has mineral uranium resources and a good number of nuclear warheads that could be reprocessed for nuclear fuel. It also has the only functioning fast neutron reactor in the world, at Beloyarsk, and has claimed to have solved the problem of building a "closed fuel cycle" reactor . That would be a major advance and would solve the problem of uranium shortage that may affect the present generation of reactors in the near future. I have no direct knowledge of the Russian nuclear situation but, from what I can say of other fields, Russia still has plenty of top class scientists and engineers, despite the non-creative destruction of the 1990s. Considering also the financial resources available, I would think that the Russian plans of boosting nuclear energy are serious.

As for renewables, Moscow is not the right place for solar panels but the Russian territory is immense and there must be plenty of places suitable for solar and wind energy. Probably there are also good possibilities for geothermal energy and Russia is so vast that it would also be the ideal place for high altitude wind power . Some good research work is being done in some areas of renewable energy, such as photovoltaics (this is the reason I went to Russia this July). It is too bad that it seems that renewable technologies don't seem to be a priority for the present government. But that can surely be improved, Russia should never be underestimated (nor invaded in winter, of course).

Several years ago, at what seemed to be one of the darkest moments of the Russian collapse, I was walking in one of the avenues of Moscow. I noticed a series of large signs hanging from lampposts, showing traditional Russian buildings and landscapes. One of my Russian colleagues translated the text of the signs for me as saying, "Nobody will help Russia, so Russia will have to help herself". Government propaganda? Sure, but that is what the Russian did. Never underestimate a country that has survived peak oil.

Two references

Two references on the Russian collapse and recovery. Both are available at www.sciencedirect.com (subscription required)

Former Soviet Union oil production and GDP decline: Granger causality and the multi-cycle Hubbert curve. Energy Economics, Volume 30, Issue 2, March 2008, Pages 271-289 Douglas B. Reynolds, Marek Kolodziej

Institutions and the supply of oil: A case study of Russia
Energy Policy, Volume 35, Issue 2, February 2007, Pages 939-949
Douglas B. Reynolds, Marek Kolodziej