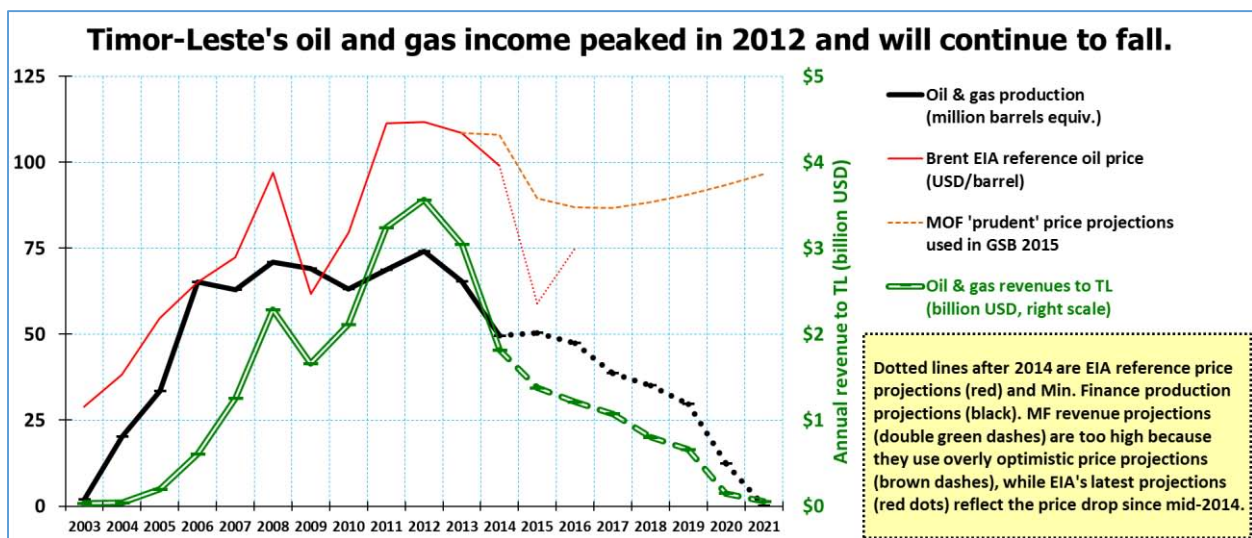


Timor-Leste’s oil and gas are going fast

15 April 2015. Online at <http://laohamutuk.blogspot.com/2015/04/timor-lestes-oil-and-gas-are-going-fast.html>

Last week, Timor-Leste’s Parliament briefly discussed and unanimously approved a revision to the State Budget for 2015. La’o Hamutuk and some Members of Parliament suggested that expenditures be reduced in light of falling petroleum revenues, but few pointed out that the main reason Timor-Leste is getting less money is because oil and gas production are declining. Unlike the volatile oil price, production rates will not go back up because the reserves are running out. This article will explore the facts and implications of this reality.



During the last couple of months, political leaders repeatedly explained that they would not recalculate the Estimated Sustainable Income guideline in light of the falling oil price, but have largely ignored the more fundamental issue of running out of oil and gas. The revised 2015 State Budget authorizes spending \$1.57 billion, unchanged from last December. If the budget is executed at the same rate as in 2014, Timor-Leste will spend more in 2015 than ever before.¹

We live in one of the most petroleum-export-dependent countries on earth. In 2014, 73% of state revenues came from converting nonrenewable oil and gas wealth into cash, and another 20% was from returns on investing oil and gas income received in earlier years.²

However, Timor-Leste’s oil and gas revenues are dropping rapidly, and we received 40% less revenues from them in 2014 than in 2013, mainly because the Bayu-Undan and Kitan fields are being used up. More than 75% of their non-renewable wealth has already been extracted – and this is irreversible.

The above graph shows historical data followed by dotted or dashed projections, not corrected for inflation, as follows:

¹ Documents, commentary and analysis on the 2015 State Budget, including the recent rectification, are at <http://www.laohamutuk.org/econ/OGE15/14OGE15.htm>

² For more about the effects of petroleum dependency, see *Can the Petroleum Fund Exorcise the Resource Curse from Timor-Leste?* <http://www.laohamutuk.org/econ/exor/ScheinerFundExorciseCurseFeb2015.pdf>

- **Amount of oil and gas produced** (thick black line), in millions of barrels per year.³ Production began in 2003, increased rapidly until 2006, and was approximately constant until 2013, with the highest level in 2012. Total production dropped 24% between 2013 and 2014.
Production projections after 2014 (dotted black line) from the Ministry of Finance are based on information from oil companies.⁴ They show a steady decline until 2020, after which the fields will no longer be profitable to operate.⁵
- **World market price for Brent crude oil** (thin red line), in U.S. dollars per barrel.⁶ Timor-Leste was very lucky in 2003-2008; the selling price of oil and gas tripled as our production ramped up. This meant that Bayu-Undan generated high revenues with low capital costs – for a time, it may have been the most profitable field in ConocoPhillips history. Prices fell in 2009 as part of the global financial crisis, recovered by 2011, and were steady until the middle of 2014, before falling again.
The dotted red line for 2015 and 2016 shows recent *reference case* projections by the U.S. Energy Information Administration, and the dashed brown line shows the outdated '*prudent*' projections (halfway between last year's *low* and *reference cases*) that the Ministry of Finance used last July to prepare the 2015 State Budget. Revised prudent projections would be at least \$10/barrel below EIA's current *reference case* for 2015, and even lower for subsequent years.
- **Oil and gas revenues received by Timor-Leste** (double green line), in billions of dollars per year, as shown on the right-hand scale. This increased rapidly until 2008 while production and prices were going up, dropped in 2009 due to the oil price drop, and climbed again until 2012 as prices and production rose. However, by 2014 revenues had descended to about half of 2012 peak levels. Although both prices and production fell, the larger impact is from waning production. Even if prices go back up to more than \$100/barrel, production will continue to decline, taking revenues with it.
The dashed green line after 2014 shows revenue projections from the 2015 State Budget, but these were based on last year's price projections (dashed brown lines) which are much higher than current reality. During the next three years, revenues are likely to be significantly lower than the Ministry projected, and after that there won't be much oil and gas left.⁷

³ Natural gas is equated to oil with the same energy content. The value of gas relative to oil is dropping, as nonconventional gas sources like fracking and coal bed methane become more significant in the world market. Historical data comes from Timor-Leste's National Petroleum Authority, <http://www.anp-tl.org/webs/anptlweb.nsf/pgLafaekDataGasListHTML>. It covers the Joint Petroleum Development Area, which contains Timor-Leste's only producing oil and gas fields – Elang-Kakatua, Bayu-Undan and Kitan. Timor-Leste gets revenues from 90% of JPDA production, and Australia gets 10%.

⁴ Production projections are from table 2.6.3.1.2 of Book 1 for the 2015 State Budget, <http://www.laohamutuk.org/econ/OGE15/BksJan15/BB1-31Jan2015en.pdf>

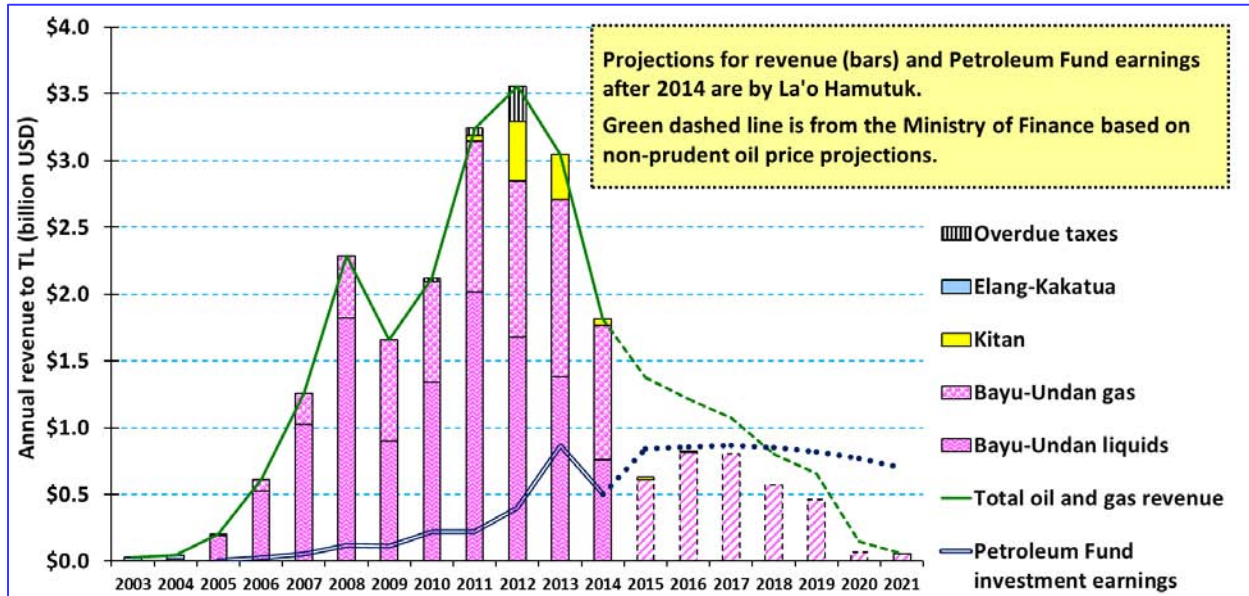
⁵ Bayu-Undan production could continue for a few years longer than currently expected, with more oil and gas extracted, but the potential additional revenues will not be enough to significantly change the overall picture. On the other hand, if oil prices stay low, commercial considerations could end Bayu-Undan production earlier than anticipated.

⁶ The Ministry of Finance uses Brent crude prices and projections from the U.S. Energy Information Administration's Annual Energy Outlook, published in May 2014, <http://www.eia.gov/forecasts/aeo/>. Newer data and projections are in the EIA's monthly Short Term Energy Outlook, <http://www.eia.gov/forecasts/steo/>. La'o Hamutuk's estimates in this paper use April 2015 figures. The Ministry's historical and projected prices are in table 2.6.3.1.2 of Book 1 for the 2015 RDTL State Budget, <http://www.laohamutuk.org/econ/OGE15/BksJan15/BB1-31Jan2015en.pdf>.

⁷ Historical data is from the quarterly Petroleum Fund reports of the Central Bank of Timor-Leste, <http://www.bancocentral.tl/PF/Reports.asp>, with projections from 2015 Budget Book 1.

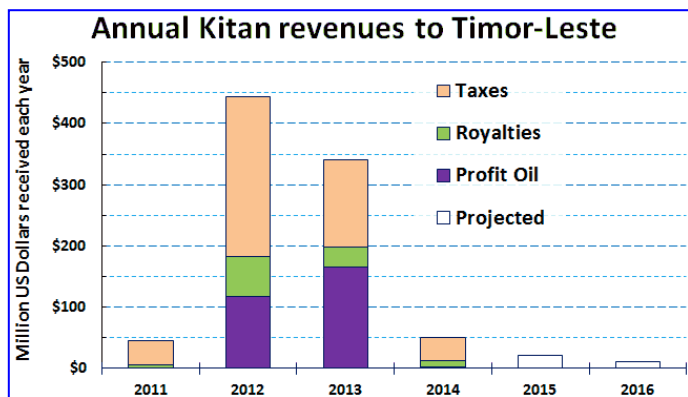
Bayu-Undan provided most of the money

Analyzing the revenues in more detail gives additional insights, as shown in the following graph. The green line, total petroleum revenues received each year, is the same as in the first graph, including the Ministry of Finance's outdated projections from 2015 on. The bars for each year show the revenue received from each oil and gas field, followed by La'o Hamutuk's more prudent projections.



- Bayu-Undan** (magenta) provides the largest portion and is the only field which will be in production after 2016. Its revenues peaked in 2011 but could continue until around 2021. Although oil (liquids) provided most income before 2013, more than half of the field's income now comes from natural gas. Gas (bubbles) is extracted at a constant rate to keep the pipeline and LNG plant at capacity, while oil production is falling due to declining field pressure.

- Kitan** (yellow) began oil production in 2011. Kitan revenues dropped 85% in 2014 because there is not much oil left in the reserve; they will end entirely in 2016.⁸



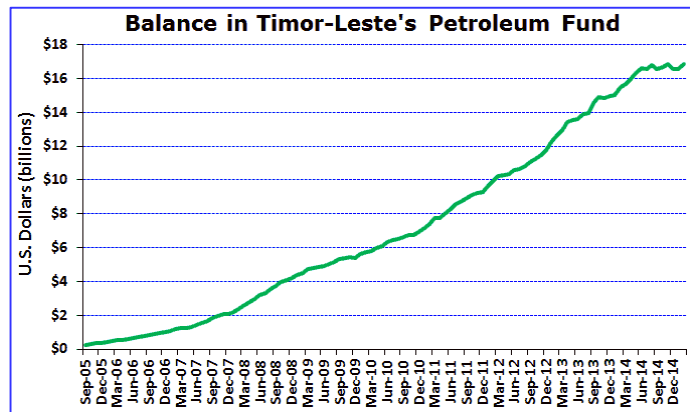
- Elang-Kakatua** (red) began oil production in 1999 and provided a little revenue until it was exhausted in 2006. Timor-Leste was unable to attract another company to operate the field after ConocoPhillips decided it was no longer profitable.

- Overdue taxes** (black vertical stripes) were assessed by the Ministry of Finance and collected from the companies beginning in 2011; they should have been paid in prior years from various projects. The companies did not agree with the assessments and paid under protest; if they win their appeals Timor-Leste could have to return \$350 million or more.⁹

⁸ For more on Kitan, see <http://www.laohamutuk.org/Oil/Project/Kitan/10EniKitan.htm>

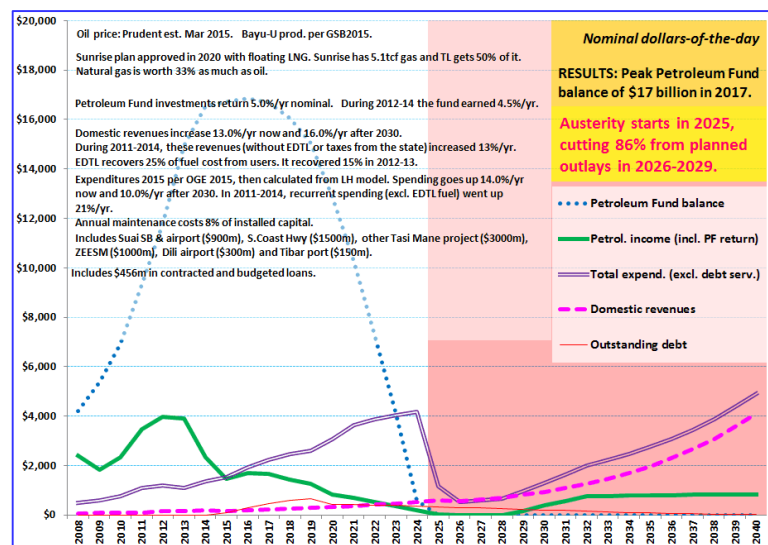
⁹ For more on back taxes, see <http://www.laohamutuk.org/Oil/tax/10BackTaxes.htm>

From 2003 through 2014, Timor-Leste converted \$20.1 billion of its oil and gas wealth into dollars, of which we spent \$6.0 billion. The remainder is in the Petroleum Fund (PF), invested in bonds and stocks around the globe. These investments have earned \$2.5 billion over the last 12 years, which was deposited in the PF. At the end of 2014, the PF was worth \$16.5 billion, \$95 million less than its balance six months earlier.



The double black line on the graph shows the annual revenues from investing the Petroleum Fund, which are re-deposited into the PF. Although some hope that these earnings could replace oil and gas revenues after the fields are exhausted, it is clear that they are much smaller and, as the Petroleum Fund’s balance is no longer growing, are unlikely to increase significantly. During 2014, the Petroleum Fund’s investments earned \$502 million, far less than the \$932 million the Government withdrew from the PF to finance the 2014 State Budget. The PF’s real return on investment last year was 2.5%, lower than the Fund’s sustainability guideline assumes.¹⁰ The 2015 state budget will withdraw \$1,327 million from the Petroleum Fund, more than double what it earned in 2014. Although future PF investment earnings depend on the global financial markets, La’o Hamutuk believes they should be projected with prudence, and the dotted black line shows our estimates.

If current trends in state spending continue, with planned projects and loans paid for in the future, it is clear that neither oil revenues nor Petroleum Fund earnings will be sufficient, and the PF balance will start to fall. In light of small non-oil revenues, La’o Hamutuk’s projections show that the Petroleum Fund could be entirely empty by 2025, with severe implications for state activities after that. How will we pay for schools, hospitals, police and maintenance – let alone pensions, trips and civil servants – after all our wealth is gone?¹¹



Possibilities for more oil and gas wealth

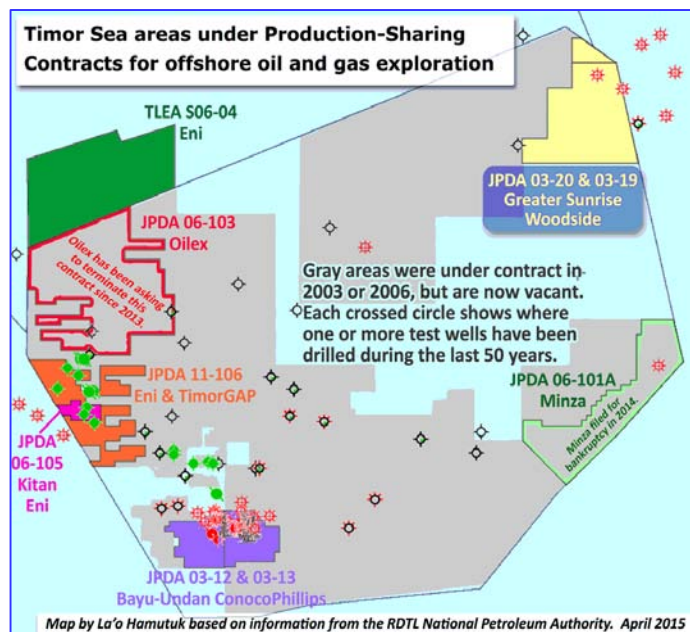
Everyone wishes that Timor-Leste had more oil and gas than the three fields discussed above. Once long-standing differences over the maritime boundary with Australia and where to process the natural gas are resolved, development of the Greater Sunrise field could proceed, and Timor-Leste could start

¹⁰ Data from Central Bank reports on the Petroleum Fund and State Budget documents.

¹¹ This graph shows one scenario from La’o Hamutuk’s Sustainability Model. For more information, see *How Long Will the Petroleum Fund Carry Timor-Leste?* <http://www.laohamutuk.org/econ/model/ScheinerPetrolFund17Feb2014en.pdf>. Updated will be posted at <http://www.laohamutuk.org/econ/model/13PFSustainability.htm>

receiving revenues about five years later. Nobody knows what natural gas will be worth decades in the future or what fraction of Sunrise wealth will be shared with Australia, but Timor-Leste's total revenues from Sunrise may be around what we will have received from Bayu-Undan –\$20-\$25 billion – spread out over 15-25 years.¹²

Petroleum officials in Timor-Leste are optimistic that the country has undiscovered, additional oil and gas reserves. Although anything is possible, it is extremely unlikely that another field as large as Bayu-Undan or Sunrise exists, as petroleum companies have explored our limited sea and land area for half a century, conducting many seismic surveys and drilling more than 50 test wells. Kitan is the only commercially viable field discovered after the flurry of exploration in the 1990s when the illegal Timor Gap Treaty came into effect. When Timor-Leste last offered new offshore exploration contracts in 2006, none of the companies already involved here submitted bids. We hope there will be more interest in the upcoming bidding round (which has been repeatedly delayed since 2010), and that companies will discover new reserves missed by previous explorations, but it would be foolhardy to make policies based on such dreams.



It will take at least ten years before Sunrise or any yet-to-be-discovered fields produce much revenue. By that time, Timor-Leste will have many more people, and they will expect and deserve better-quality public services and infrastructure. If the State of Timor-Leste is to be able to provide for its citizens between now and then, and even after that, we need to begin more realistic and effective planning, strategies and implementation today.

Policy-makers already have the information in this article, but it doesn't appear to guide budgetary and economic decisions. The most important issue is not the usually-violated ESI guideline, but how the state of Timor-Leste will be able to afford services for its people over the next decade. The Petroleum Fund Law's promise to future generations may already be impossible to keep.¹³

¹² For more on the boundary dispute, see <http://www.laohamutuk.org/Oil/Boundary/CMATSindex.htm>
For more on the Greater Sunrise debate, see <http://www.laohamutuk.org/Oil/Sunrise/10Sunrise.htm>

¹³ The Preamble of Law no. 9/2005 promises that "The Petroleum Fund shall contribute to a wise management of the petroleum resources for the benefit of both current and future generations." After its 2011 revision, this law includes six repetitions of the phrase "current and future generations."