How long will the Petroleum Fund carry Timor-Leste?

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15 July 2013

- With current policies, until 2024.
- If we’re lucky and smarter, until 2027.
- With a lot of luck and skill, until 2036.
- If we’re lucky, strategic, prudent and wise, until our non-oil economy can replace it.

What must we do to prevent Timor-Leste from going broke before today’s babies finish secondary school?
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Historical: if current trends continue

- $20,000
- Without Greater Screne.
- Petroleum Fund investments return 3.1% annually. During 2012 the fund earned 3.0%.
- Domestic revenues increased 4.9% annually and 7.4% after 2010. During 2009-2012, these revenues (without EDL or taxes from the state) increased 7.1%.
- EDL recovered 1.2% of its cost from users. It currently recovers 1.1%
- Expenditures 2013-2016: OGE 2013, then calculated from the 1H model. Spending grew 17.0% per year and 12.0% per year. In 2009-2012, recurrent spending (not EDF) grew at 18.0% per year.
- Annual maintenance costs 8% of installed capital.

Includes $2,500m for the Tasi Mane project, $450m for Dili airport and Tiafoi port.
Includes $1,800m contracted and budgeted loans.

Reference: Somewhat optimistic

- $20,000
- Without Greater Screne.
- Petroleum Fund investments return 3.9% annually. During 2012 the fund earned 3.8%.
- Domestic revenues increased 10.3% per year and 14.3% per year after 2010.
- Petroleum Fund investments return 5.6% annually. During 2012 the fund earned 5.5%.
- Domestic revenues increased 10.3% per year and 14.3% per year after 2010. During 2009-2012, these revenues (without EDL or taxes from the state) increased 7.4%.
- EDL recovers 10% of its cost from users. It currently recovers 12%
- Expenditures 2013-2016: OGE 2013, then calculated from the 1H model. Spending grew 15.0% per year and 10.0% per year. In 2009-2012, recurrent spending (not EDF) grew at 18.0% per year.
- Annual maintenance costs 8% of installed capital.

Includes $2,500m for the Tasi Mane project, $450m for Dili airport and Tiafoi port.
Includes $1,800m contracted and budgeted loans.
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**Dreaming: We win, but still go broke**

Future oil prices: Brent Avg High & Reference (MEO2011). Bapu-Lindian production 10% over base case, extending production by 6 years.

- Greater Sunrise plan approved in 2013 with pipeline to TL. Sunrise has 617 bcm gas and TL gets 50% of liq. Natural gas is worth 50% as much as oil.
- Petroleum Fund investments return 6.2%/yr nominal. During 2012 the fund earned 3.8%/yr.
- Domestic revenues: increase 10.0%/yr now and 14.0%/yr after 2016.
- During 2009-2012, these revenues (without EDF or taxes from the state) increased 7.1%/yr. EDF, recoveries 50% of fuel cost from users. It currently recovers 12%.
- Expenditures 2013-14 per OGE 2013, then calculated from LI model. Spending grew 12.0%/yr now and 8.0%/yr after 2016. In 2009-2012, recurrent spending (excl. EDF, fuel) went up 18%/yr.
- Annual maintenance costs 8% of installed capital.

**Prudent: You can’t always get what you want**


- Without Greater Sunrise.
- Petroleum Fund investments return 5.0%/yr nominal. During 2012 the fund earned 3.8%/yr.
- Domestic revenues: increase 6.0%/yr now and 8.0%/yr after 2010.
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- Annual maintenance costs 8% of installed capital.

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*Nominal dollars-of-the-day*

RESULTS: Peak Petroleum Fund balance of $32 billion in 2024.

TL becomes a net debtor in 2037. Auisterbey starts in 2037, cutting 56% from planned outlays in 2038-2061.

- Petroleum Fund balance
  - Petroleum reven. + PF return
  - State expenditures
  - Domestic revenues
  - Outstanding debt
Petroleum Dependency

- 2013 State Budget: $1,648 million, $787 million (48%) will be from the Petroleum Fund in 2013. $680 million (40%) more is from the PF in the past and future.

- Non-oil GDP in 2011: $1,046 million, Petroleum GDP in 2011: $3,463 million (81%)

- State activities, paid for with oil money, are about half of our “non-oil” economy, because some of this money circulates in the local economy.

- Balance of trade (2012): $670m imports, $31m exports.

South Sudan is the only country more dependent on oil and gas exports than Timor-Leste.

State Budgets 2002-2013

The State Budget goes up far above inflation, faster than the economy and faster than almost every other nation.
The 2013 Budget is for infrastructure.

Allocation of the 2013 State Budget ($1.648 million US Dollars)

- Infrastructure: $783 million (48%)
- Governance: $214 million (13%)
- Services: $208 million (13%)
- Benefits: $236 million (14%)
- Development: $74 million (4%)
- Security: $101 million (6%)
- Other: $32 million (2%)

Except for oil, only the state grows.

What makes up Timor-Leste’s GDP?

Each year is shown with two bars. The one on the right is a 5x magnification of the non-oil GDP shown in the yellow part of the left bar, showing major sectors.
Signs of the “resource curse” (1)

- Seeing money as the solution to every problem
  It’s easier to buy a scholarship than to build a university.

- Spending without thinking
  Real estate expenditures grow more than 20% per year.

- Lack of realistic long-term planning
  The Strategic Development Plan is but a dream.

- Import dependency
  Timor-Leste has a billion-dollar non-oil trade deficit.

- Inflation from little local productive capacity
  Our productive economy cannot absorb the cash in circulation.

Signs of the “resource curse” (2)

- Ignoring non-oil development and revenues

- Acting as if the oil money will last forever
  Bayu-Undan and Kitan will be dry by 2024.

- Borrowing today, to repay tomorrow
  TL will borrow $480 million in the next five years, often for projects with little chance of return, and much more after that.

- Wealth goes mainly to the urban elite.
  Most people won’t benefit from highways, airports and oil facilities, but will feel the burden of loan repayments.

- Petroleum sector “captures” decision-making.
  Few creative ideas to develop agriculture, education, tourism, small industries ...
**Reasons for this model**

- To support prudent, evidence-based planning decision-making.
- TL’s finite oil wealth won’t last very long.
- Today, we depend on it for everything.
- To explore the effects of policy and uncontrollable changes.
- Take “engineering approach” – history, assumptions and causality, not correlations

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**Sustainability is not a new idea in Timor-Leste**

- 2004: Estimated Sustainable Income Petroleum Fund rule (front-loaded then, often violated)
- 2011: UNDP National Human Development Report
- 2009-2013: SDP, PPPs, Tasi Mane and other proposals mention but fail to implement it.
- 2011-now: MoF “Yellow Road” options, recently made public – but unlikely to be implemented.
- 2012: LH original “going for broke” model
- 2013: World Bank Country Strategy
What this model is and isn’t

- Projects state revenues and expenditures based on current trends, external factors and future decisions
- Approximate, incremental and relative results, not precise predictions
- “Open source” – we welcome discussion and improvement
- Does not include economic predictions: no GDP, inflation, poverty or trade balance projections ... or dubious correlations

Outputs

- Revenues and spending year-by-year
- Balance remaining in Petroleum Fund
- Balance owed from loans
- Not on graphs:
  - Estimated Sustainable Income
  - Breakdown of spending: recurrent (salaries, transfers, goods & services), debt service, O&M, minor and development capital
  - Breakdown of income: EDTL, loans, domestic taxes, oil revenues, Petroleum Fund return
Testable inputs

- Global inflation, TL population, budgetary relationships
- Oil prices: Brent or WTI; EIA price cases; gas/oil ratio
- Production: recoverable from Bayu-Undan and Sunrise
- Greater Sunrise development: if, when, where and revenue split
- Return on Petroleum Fund investments
- Domestic revenues, including recovery of EDTL fuel costs
- Recurrent expenditure, including maintenance of capital
- Capital expenditure: PPP and Tasi Mane components: if and amounts
- Loans: existing, planned and possible for projects and deficit, including amounts, interest and repayment periods
- “Yellow Road” and other sustainable scenarios

Reference case (a bit optimistic)

- Future oil prices: Brent Reference ($2023), Bayu-Undan production base case.
- Greater Sunrise plan approved in 2013, with pipeline to TL. Sunrise has 5.5 tcf gas and TL gets 50% of it. Natural gas is worth 35% as much as oil.
- Petroleum Fund investment: return 6.5% per annum.
- Domestic revenues increase 10.0% per year and 14.0% per year after 2020. EDTL recovers 20% of fuel costs from users.
- Expenditure 2013-14 per OGE 2013, then calculated from LH model. Spending goes up 10.0% per year and 13.0% per year after 1990. Annual maintenance costs 8% of installed capital.
- Includes $290m for the Tasi Mane project, $450m for Dili airport and Tuber port. Includes $322m contracted and budgeted loans.

Results:
- TL becomes a net debtor in 2038. Austerity starts in 2035, cutting 6% from planned outlays in 2029-2032.
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With greater Sunrise

**Without Greater Sunrise**


- Petroleum Fund investment return 6.0%/yr nominal.
- Domestic revenues increase 10.0%/yr now and 14.0%/yr after 2010.
- EDI recovers 20% of fuel cost from users.

- Expenditures 2013-19: OPEX 2013, then calculated from LH model. Spending goes up 15.0%/yr now and 19.0%/yr after 2010.
- Annual maintenance costs 8% of installed capital.
- Includes $200m for the Tal-Maine project, $450m for Dili airport and Tible port.
- Includes $922m contracted and budgeted loans.

**Nominal dollars-of-the-day**

**RESULTS:** Peak Petroleum Fund balance of $20 billion in 2020.

TL becomes a net debtor in 2020.

- Petroleum Fund balance
  - Petrol.reven. + PF return
  - State expenditures
  - Domestic revenues
  - Outstanding debt

**With higher B-U prices and production**

Future oil prices: Brent Avg High & Reference (2012-2013), Bayu-Undan production 10% over base case, extending production by 4 years.

- Petroleum Fund investment return 6.0%/yr nominal.
- Domestic revenues increase 10.0%/yr now and 14.0%/yr after 2010.
- EDI recovers 20% of fuel cost from users.

- Expenditures 2013-19: OPEX 2013, then calculated from LH model. Spending goes up 15.0%/yr now and 19.0%/yr after 2010.
- Annual maintenance costs 8% of installed capital.
- Includes $200m for the Tal-Maine project, $450m for Dili airport and Tible port.
- Includes $922m contracted and budgeted loans.

**Nominal dollars-of-the-day**

**RESULTS:** Peak Petroleum Fund balance of $29 billion in 2023.

TL becomes a net debtor in 2020.

- Petroleum Fund balance
  - Petrol.reven. + PF return
  - State expenditures
  - Domestic revenues
  - Outstanding debt

15-Jul-13
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Recover 80% of EDTL fuel costs

- Nominal dollars-of-the-day
- Results: Peak Petroleum Fund balance of $21 billion in 2021.
- TL becomes a net debtor in 2029. Austerity starts in 2029, cutting 66% from planned outlays in 2030-2035.

- Petroleum Fund balance
- Petrol.reven. + PF return
- State expenditures
- Domestic revenues
- Outstanding debt

Reference case

- Nominal dollars-of-the-day
- TL becomes a net debtor in 2028. Austerity starts in 2028, cutting 77% from planned outlays in 2029-2032.

- Petroleum Fund balance
- Petrol.reven. + PF return
- State expenditures
- Domestic revenues
- Outstanding debt
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Cancel Tasi Mane project (SSB & highway)

Full Tasi Mane project (including refinery)
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**Finance full Tasi Mane project with loans**

- **Future oil price:** Brent Reference ($60 in 2013) Bavye-Ulcen production base case.
- **Greater Sunrise plan approved in 2016 with pipeline to TL: Sunrise has 6.1Tcf gas and TL gets 56% of it. Natural gas is worth 53% as much as oil.**
- **Petroleum Fund investments return 6.6% per annum.**
- **Domestic revenues increase 18.0%/yr now and 14.0%/yr after 2010.**
- **TDL recovers 20% of fuel cost from users.**
- **Expenditures 2013-14 per OGE 2013, then calculated from LH model. Spending goes up 15.0%/yr now and 18.0%/yr after 2010.**
- **Annual maintenance costs 6% of installed capital.**
- **Includes $600m for the Tasi Mane project, $450m for Oli Airport and Tiper port.**
- **Includes 5%/year in contracted and budgeted loans.**
- **$600m for the Oli Supply Base & Airport project cost $800m at 2%, to be repaid over 25 yrs $150/m for the Sali-Benza Highway (project cost $200m) at 4%, to be repaid over 20 yrs $300/m for the rest of the Tasi Mane project (project cost $4100m) at 5%, to be repaid over 30 yrs.**

**Nominal dollars-of-the-day**

- **Results: Peak Petroleum Fund balance of $23 billion in 2021. TL becomes a net debtor in 2027. Austerity starts in 2027, cutting 7% from planned outlays in 2029-2031.**

- **Petroleum Fund balance**
  - Petrol revenues + PF return
  - State expenditures
  - Domestic revenues
  - Outstanding debt

**Reference case**

- **Future oil price:** Brent Reference ($80 in 2013) Bavye-Ulcen production base case.
- **Greater Sunrise plan approved in 2016 with pipeline to TL: Sunrise has 6.1Tcf gas and TL gets 56% of it. Natural gas is worth 53% as much as oil.**
- **Petroleum Fund investments return 6.6% per annum.**
- **Domestic revenues increase 18.0%/yr now and 14.0%/yr after 2010.**
- **TDL recovers 20% of fuel cost from users.**
- **Expenditures 2013-14 per OGE 2013, then calculated from LH model. Spending goes up 15.0%/yr now and 18.0%/yr after 2010.**
- **Annual maintenance costs 6% of installed capital.**
- **Includes $220m in contracted and budgeted loans.**
- **Includes $200m for the Oli Airport project cost $800m at 2%, to be repaid over 25 yrs.**

- **Nominal dollars-of-the-day**

- **Results: Peak Petroleum Fund balance of $20 billion in 2020. TL becomes a net debtor in 2028. Austerity starts in 2028, cutting 7% from planned outlays in 2029-2032.**

- **Petroleum Fund balance**
  - Petrol revenues + PF return
  - State expenditures
  - Domestic revenues
  - Outstanding debt
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Increase revenue growth (from 10 to 13%)

- Greater Sunrise plan approved in 2016 with pipeline to TL. Sunrise has 5.1 Tcf gas and TL gets 56% of it.
- Natural gas is worth 83% as much as oil.
- Petroleum Fund investments return 6.4% per nominal.
- Domestic revenues increase 18.0%/yr now and 15.0%/yr after 2020.
- TL recovers 20% of fuel cost from users.

Expenditures 2013-14 per OGE 2013, then calculated from LH model. Spending goes up 15.0%/yr now and 13.0%/yr after 2018.
- Annual maintenance costs 8% of installed capital.
- Includes $7200m for the Taal Maze project, $450m for Dili Airport and Tito port.
- Includes $322m for contracted and budgeted loans.

Nominal dollars-of-the-day
- Petroleum Fund balance
- State expenditures
- Domestic revenues
- Outstanding debt


TL becomes a net debtor in 2028. Austerity starts in 2028, cutting 64% from planned outlays in 2025-2027.

Reduce spending growth (from 15 to 12%)

- Greater Sunrise plan approved in 2016 with pipeline to TL. Sunrise has 5.1 Tcf gas and TL gets 56% of it.
- Natural gas is worth 83% as much as oil.
- Petroleum Fund investments return 6.4% per nominal.
- Domestic revenues increase 18.0%/yr now and 14.0%/yr after 2020.
- TL recovers 20% of fuel cost from users.

Expenditures 2013-14 per OGE 2013, then calculated from LH model. Spending goes up 12.0%/yr now and 10.0%/yr after 2018.
- Annual maintenance costs 8% of installed capital.
- Includes $7200m for the Taal Maze project, $450m for Dili Airport and Tito port.
- Includes $322m for contracted and budgeted loans.

Nominal dollars-of-the-day
- Petroleum Fund balance
- State expenditures
- Domestic revenues
- Outstanding debt


TL becomes a net debtor in 2031. Austerity starts in 2033, cutting 58% from planned outlays in 2037-2055.
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Reference case

- Future oil prices: Brent Reference (50$/2035) - Bayo-Urdua production base case.
- Greater Sunrise plan approved in 2014 with pipeline to TL. Sunrise has 5.1Tcf gas and TL gets 50% of it. Natural gas is worth 53% as much as oil.
- Petroleum Fund investments return 6.4% yr nominal.
- Domestic revenues increase 10.0%/yr now and 14.0%/yr after 2018.
- IDTI recovers 20% of fuel cost from users.
- Expenditures 2013-4yper CGE 2013, then calculated from LH model. Spending grows up 15.0%/yr now and 19.0%/yr after 2018.
- Annual maintenance costs 8% of installed capital.
- Includes $200mn for the Taid Mane project, $450mn for Dili airport and Tito port.
- Includes $322mn contracted and budgeted loans.

MoF “Yellow Road” - impossible

- Future oil prices: Brent Reference (50$/2035) - Bayo-Urdua production base case.
- Greater Sunrise plan approved in 2014 with pipeline to TL. Sunrise has 5.1Tcf gas and TL gets 50% of it. Natural gas is worth 53% as much as oil.
- Petroleum Fund investments return 6.4% yr nominal.
- Domestic revenues increase 10.0%/yr now and 14.0%/yr after 2018.
- IDTI recovers 20% of fuel cost from users.
- Yellow Rd: MoF sustainable expenditure.
- Includes $790mn for the Taid Mane project, $450mn for Dili airport and Tito port.
- Includes $322mn contracted and budgeted loans.

Nominal dollars-of-the-day

TL becomes a net debtor in 2028. Austerity starts in 2028, cutting 67% from planned outlays in 2025-2027.
- Petroleum Fund balance
- Petrol.reven. + PF return
- State expenditures
- Domestic revenues
- Outstanding debt

Fiscal balance always positive.
This can only work with luck and discipline, avoiding wasteful spending and managing wisely. It’s based on hopes, but not fantasies.

However, it could give us enough time to develop our human capital and non-oil economy — if we plan wisely, spend economically and build on Timor-Leste’s strengths.
Still to explore

• Other capital investment
• More refined recurrent cost projections, including pensions
• Possible future oil discoveries
• Links between human & physical investment and revenue growth
• Baby boom population dynamics
• Impacts of local inflation

Thank you.

La’o Hamutuk will hold an in-depth workshop on this model next week. Check our blog for details.

You can find more and updated information at
• La’o Hamutuk website http://www.laohamutuk.org
• La’o Hamutuk blog http://laohamutuk.blogspot.com/
• Reference DVD-ROM available from our office.

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