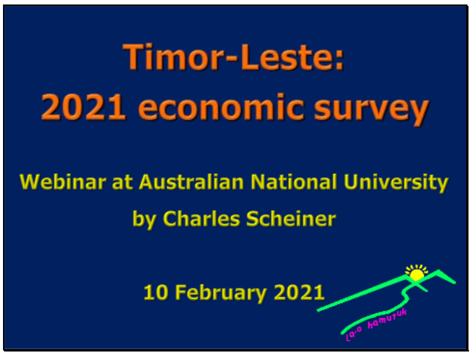
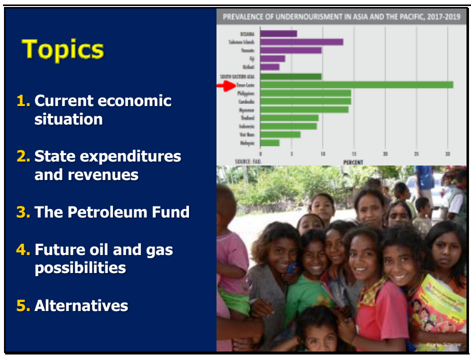


Thank you, Stephen, Ari and other people who organized this webinar, and I'm honored to be here. I've been a researcher at La'o Hamutuk since 2001. La'o Hamutuk is an independent Timorese, non-partisan, research and advocacy NGO, which works to help decision-makers choose policies, based on facts, which will enable Timorese women and men to fully enjoy their economic, social and human rights.

Although I lived in Dili for many years, I've been in New York since March, although I hope to get back there soon.

I'm going to cover a lot of material pretty quickly. We can go into more detail during the discussion, and you can download this presentation from ANU's or La'o Hamutuk's websites.



I will talk about the current economic situation, the state budget, and the Petroleum Fund which Timor-Leste relies on.

Then we'll look at future oil and gas possibilities, including Greater Sunrise and the Tasi Mane Project.

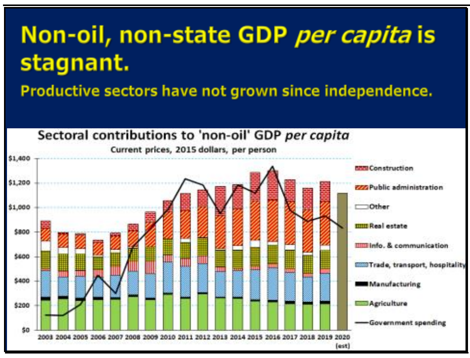
The graph at the top right shows that malnutrition in Timor-Leste is the worst in the region. More than half of children under 5 are stunted, worse than every country in the world except Burundi and Eritrea.

It's easy to get caught up in the numbers and the graphs. But we shouldn't forget that we're talking about people.

Like the girls in the photo, the majority of Timorese people are under 20 years old – they were born after the Indonesian occupation ended. Most of them live in rural areas and are growing up with inadequate food, poor education, substandard health care and few employment opportunities.

Nevertheless, everyone appreciates that they live in an independent, peaceful, free and democratic nation.

Virtually all the data in this presentation comes from official sources. Money is in U.S. dollars, the currency of Timor-Leste.



I don't like to use GDP, because it counts dollars, not people. But it's what most academics expect.

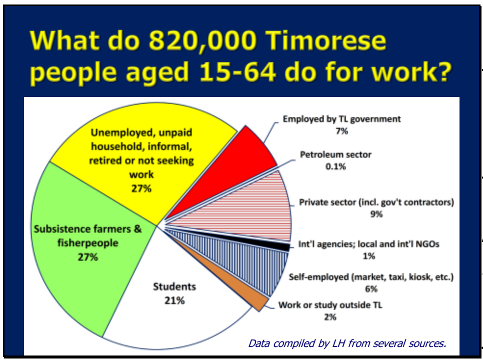
This graph shows the components of non-oil GDP, adjusted for inflation and population.

Nearly all the "growth" from 2006 to 2015 is in the top two segments, construction and public administration, which are almost entirely from oil-funded state spending. The black line shows how much the government spent each year, and its decline since 2016 is reflected in the declining GDP.

The productive sectors of agriculture and manufacturing are smaller today than they were at independence.

Most people are subsistence farmers, with very little money. GDP considers them less valuable than employees, bureaucrats or entrepreneurs.

Note: The bar for 2020 reflects a government projection, but there is no sectoral breakdown yet.



Less than a quarter of working-age people are in the formal economy – the rest are subsistence farmers or fisherpeople, not working for income, or students. Of those who work for dollars, roughly equal numbers work for the government, private companies, and very small family businesses.

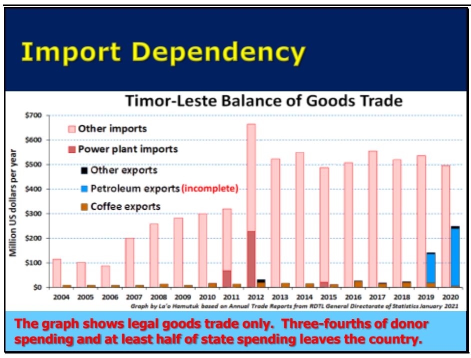
Although this picture shows a lot of under-utilized human potential, it also shows the improbability that business people, such as foreign investors or the oil industry, can drive the entire economy.

The working-age population increased by more than 10% between 2014 and 2018. In the same period, private sector employment for businesses declined by 15%.

This worrisome trend is probably caused by reduced state spending.

Projects like Heineken, TL Cement, Pelican Paradise and Tasi Mane will each employ fewer people in total than the 2,000 who come into the labor force every month.

A more holistic approach to economic development is clearly needed, concentrating on agriculture.



Since 2013, Timor-Leste's trade balance has been pretty consistent. Every year, the country imports about $500 million worth of goods, mostly from Indonesia and China. About 2% of them come from Australia.

Non-oil exports are usually around $20 million per year, and most of that is coffee.

Petroleum exports are not tracked consistently, since it's sold at sea or through a pipeline, out of sight of the trade authorities. Also, until mid-2019, it was from an area of disputed sovereignty.

The imbalance in services trade is similar. For the last eight years, Timor-Leste's Balance of Payments, excluding oil and investment income, has been about negative one billion dollars every year.

When Timor-Leste can no longer pay for imports the deficit will decline, but the impact on families will be devastating if local food production has not markedly improved.

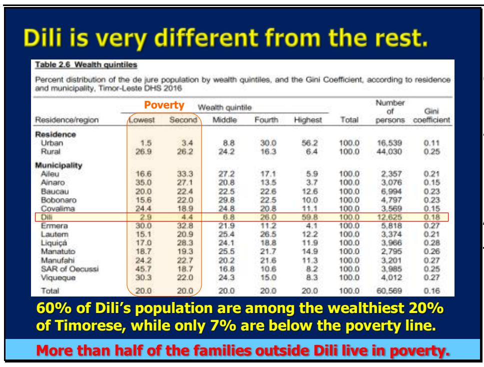

Dili is very different from the rest.

Table 2.6 Wealth quintiles

Percent distribution of the de jure population by wealth quintiles, and the Gini Coefficient, according to residence and municipality, Timor-Leste DHS 2016

	Wealth quintile (Poverty)							
Residence/region	Lowest	Second	Middle	Fourth	Highest	Total	Number of persons	Gini coefficient
Residence								
Urban	1.5	3.4	8.8	30.0	56.2	100.0	16,539	0.11
Rural	26.9	26.2	24.2	16.3	6.4	100.0	44,030	0.25
Municipality								
Aileu	16.6	33.3	27.2	17.1	5.9	100.0	2,357	0.21
Ainaro	35.0	27.1	20.8	13.5	3.7	100.0	3,076	0.15
Baucau	20.0	22.4	22.5	22.6	12.6	100.0	6,994	0.23
Bobonaro	15.6	22.0	29.8	22.5	10.0	100.0	4,797	0.23
Covalima	24.4	18.9	24.8	20.8	11.1	100.0	3,569	0.15
Dili	2.9	4.4	6.8	26.0	59.8	100.0	12,625	0.18
Ermera	30.0	32.8	21.9	11.2	4.1	100.0	5,818	0.27
Lautem	15.1	20.9	25.4	26.5	12.2	100.0	3,374	0.21
Liquiçá	17.0	28.3	24.1	18.8	11.9	100.0	3,966	0.28
Manatuto	18.7	19.3	25.5	21.7	14.9	100.0	2,795	0.26
Manufahi	24.2	22.7	20.2	21.6	11.3	100.0	3,201	0.27
SAR of Oecussi	45.7	18.7	16.8	10.6	8.2	100.0	3,985	0.25
Viqueque	30.3	22.0	24.3	15.0	8.3	100.0	4,012	0.27
Total	20.0	20.0	20.0	20.0	20.0	100.0	60,569	0.16

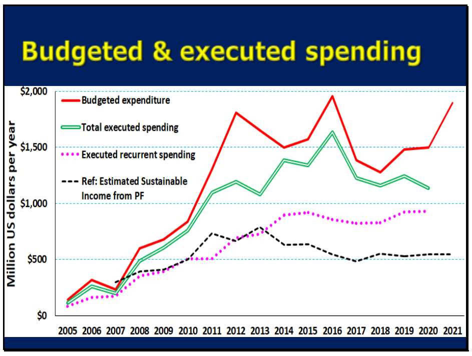
60% of Dili's population are among the wealthiest 20% of Timorese, while only 7% are below the poverty line.

More than half of the families outside Dili live in poverty.

People in the capital are much better off than those in the rest of the country, although only a handful are wealthy by international standards.

Sixty percent of Dili's population is among the richest 20% of Timor-Leste's population.

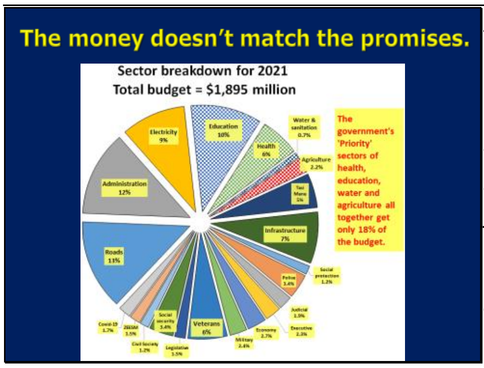
Although only 7% of Dili people are in poverty, more than half of the families in the rest of the country cannot afford to pay for their basic necessities.



As I mentioned, most of Timor-Leste's "non-oil economy" is fueled by state spending. The red line shows how much was budgeted for each year, and the green line shows how much was actually spent. Spending rose very rapidly until 2012 and continued to grow until 2016, but it then declined through 2020. This year's budget envisions a big increase, but it remains to be seen how much will be executed.

The purple dotted line is recurrent spending – personnel, supplies, and day-to-day government operations. It continued to rise even when total spending fell.

The black dashed line is the "Estimated Sustainable Income" from the Petroleum Fund. It represents the amount of money which can be withdrawn from the Fund each year without depleting its long-term balance, and is based on the current balance and anticipated future petroleum revenues.



Six weeks ago, Timor-Leste enacted its 2021 state budget, the second-largest in the country's history.

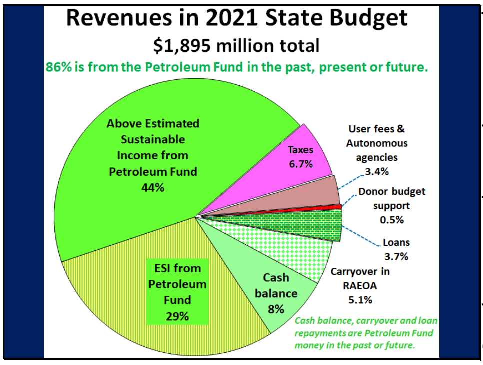
For years, every government has said that its priorities are health, education, water supply and agriculture, but only 18% of appropriations are allocated to them.

This is a little better than in past years, but far below international good practice, which is that at least 20% of state spending should go for education, and 10% for health.

38% of Timor-Leste people are school age (5-19), more than twice the percentage in Australia. However, Australia allocates 13% of government spending to education, compared with 10% in Timor-Leste.

Agriculture, which is the principal livelihood of about 2/3 of Timorese families and produces essential food which could address both malnutrition and the trade deficit, gets about 2% of public spending. This is significantly more than in the past, but still far below what is needed.

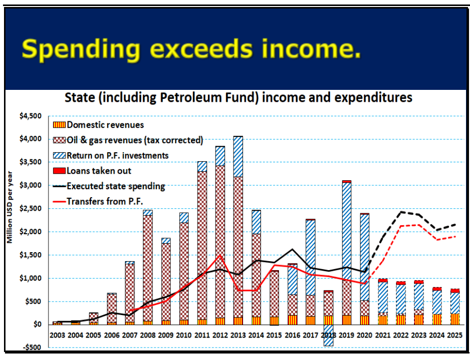
Note: The calculations underlying this graph are based on what the money is allocated for, not which ministry it goes to. For example, education includes the two education ministries, as well as the National University and other educational institutions, scholarships, education-related infrastructure, and money allocated to municipal and Oecusse administrations for education.



To pay for these expenditures, the state budget uses domestic revenues (taxes and user fees), direct budget support from donors, and money borrowed from international financial institutions. However, all together these cover less than 15% of desired expenditures, and the remaining "non-oil fiscal deficit" is covered by transferring money from the Petroleum Fund, represented by the five greenish slices. The two largest ones, the Estimated Sustainable Income and the excess above ESI, will be withdrawn in 2021. The cash balance and carryover toward the lower right are money that was taken out in prior years and not expended, and the bricked-in loans at right will have to be repaid – with about 80% of Petroleum Fund money.

Non-oil or "domestic" revenues, the three reddish slices, cover about 10% of the budget.

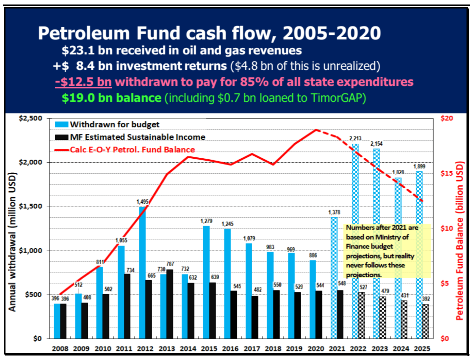
Note: even this is an overstatement. A significant part of domestic revenues is the gross income from public services which run at a loss. For example, in 2010-2019, Timor-Leste spent $1.9 billion to generate electricity. In that period, revenues from electricity totaled $0.2 billion, 14% of all domestic "revenues".



The red-and-white checked bars show the oil and gas revenues Timor-Leste received each year, which in 2020 were about one-tenth of their 2012 peak. They will fall to zero when the Bayu-Undan field, the source of 93% of petroleum revenues to date, dries up in a couple of years. (Santos will drill three more wells there to sip up the last puddles of oil and gas, but they are unlikely to generate significant revenues for Timor-Leste because the $235 million it will cost to drill them will be "recovered" from taxes).

The blue striped bars show what the Petroleum Fund has received from its investments, which are mostly in overseas stocks and bonds. They rise and fall with international financial markets, which did well in 2019 and 2020. The Fund's investments lost money in 2015 and 2018.

The black line shows how much the government spent each year. Where it is higher than the bars, Timor-Leste went into deficit, as in 2015, 2016 and 2018. According to government projections, this gap will increase significantly from now on.

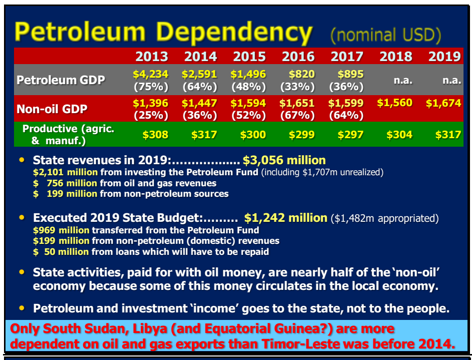


Since it was set up 15 years ago, the Petroleum Fund has received $23 billion in oil income and $8 billion in returns on its investments. $12 billion has been withdrawn, and $19 billion remains in the Fund.

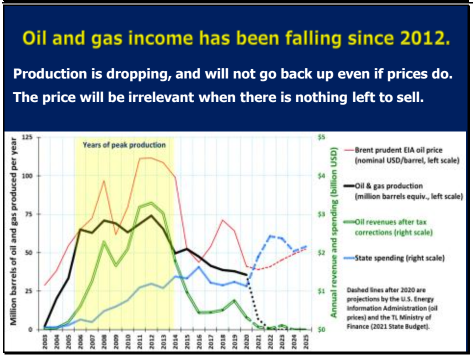
The red line is the Fund's balance, while the blue bars show how much was withdrawn each year, and the black bars show what portion of this was "sustainable." During the next five years, the government plans to withdraw four times the sustainable amount, although their forecasts often turn out wrong.

My modeling, confirmed by some government scenarios, finds that the Petroleum Fund could be empty within a decade.

Note: Withdrawals to date have been 63% above ESI. Since 2009, the only year ESI was respected was 2013, because much of the huge withdrawal in 2012 was unspent and carried over.



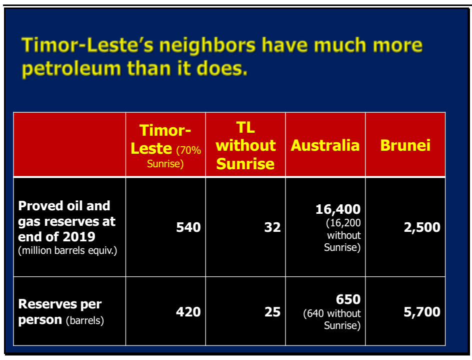
This table reviews the drop in petroleum activity, the dominance of the Petroleum Fund in state finances, and the stagnancy of productive sectors of the economy. I won't go through it now, but you can download the presentation and read it later.



Timor-Leste was very lucky with Bayu-Undan. It was built when oil prices (red line) and costs were low, and produced when oil prices were high. For a while, it was the most profitable project in the history of ConocoPhillips. But nonrenewable reserves inevitably run out, and Timor-Leste has already received 99% of the money it will get from Bayu-Undan.

The black line shows the amount of oil and gas produced each year, and the green line shows how much money it generated for Timor-Leste. Income lagged production while capital costs were being repaid in 2004-2007. Since 2015, prices and production have been dropping, and revenues are falling even faster as each barrel becomes more expensive to extract. By 2019, when the Maritime Boundary Treaty came into effect and Australia stopped siphoning off a tenth of the revenues, there wasn't much left.

Note: the slight revenue rise in 2018-2019 was from higher oil prices, the Treaty, and additional production wells. But it still didn't keep up with state spending (blue line). The expected blip in 2023 is taxes on decommissioning Bayu-Undan.



Because Timor-Leste depends so much on oil and gas revenues, many people think it's an oil-rich country. It's not.

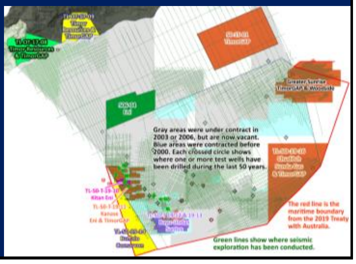
If the Greater Sunrise project goes ahead, it will add to Timor-Leste's reserves, although it will not be nearly as lucrative as Bayu-Undan. The logistics are harder, and the global petroleum economy has evolved. Oil and gas will become less valuable when the world gets serious about averting further calamities from climate change.

Our seas have been explored for half a century, and our land for longer.

Bayu-Undan and Kitan are the only proven fields, and they are almost depleted.

Sunrise and Buffalo are in development.

There may be no others which are commercially viable.



The darker-colored shapes are current oil and gas contracts, although only Bayu-Undan (purple) is operating today. Most of the other areas are speculative

The most geologically promising areas have long been explored by other companies, both seismically (green lines) and under previous contracts (gray and blue). After unpromising results, the companies relinquished the areas. In the last bidding rounds in 2006, no company which had already explored here submitted a bid, and they know the geology best.

Timor-Leste is in the midst of a long-delayed bidding round for companies to explore and exploit potential onshore and offshore areas, extended until this October. Worldwide, 10-20% of petroleum exploration wells find something worth developing. Since 1970, 80 exploration wells (black circles) drilled in Timor-Leste's territory have discovered eight commercially viable reserves.

Current and future projects

Project	Operator (partners)	Oil & gas reserve (mmBOE)	Possible future revenues (million USD)	Status
Bayu-Undan current wells	Santos 46% (SK E&S, Inpex, Eni, JERA/Tokyo Gas)	20	$209	Produced 800 mmBOE since 2004, will end in 2022.
Bayu-Undan infill wells	Santos 46% (SK E&S, Inpex, Eni, JERA/Tokyo Gas)	20	$0	Three more production wells will be drilled in mid-2021 and may extend production 1-2 years.
Greater Sunrise	Woodside 33% (TimorGAP 57%, Osaka Gas)	1,080	?	Discovered in 1974. Seeking financing to proceed with development. High capital costs. TL will get 70% of state revenues.
Buffalo	Carnarvon 50% (Advance Energy)	31	$465	Produced 20 mmBOE in 1999-2005 for BHP and Australia. First new well planned for late 2021.
Onshore (Covalima & Manufahi)	Timor Resources 50% (TimorGAP)	40	$600	First test wells planned for July 2021.
Chuditch	SundaGas 75% (TimorGAP)	588(?)	?	Shell drilled a test well in 1998 but did not continue. New owners will decide by the end of 2022 whether to drill another.
Three other contract areas	TimorGAP and Eni	?	unlikely	Not enough work has been done to estimate possible reserves. No wells planned.

This table lists the oil and gas projects currently under contract which could provide more revenue for Timor-Leste.

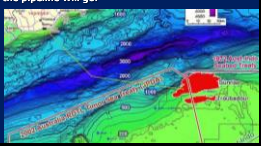
Except for Bayu-Undan and Sunrise, all of them are run by very small, inexperienced companies. TimorGAP, SundaGas and Timor Resources have never drilled a well anywhere, and Carnarvon just started its first producing project.

The four projects which are likely enough to estimate could, if all goes well, generate a total of almost $1.3 billion for Timor-Leste – as much as the country received in petroleum revenues during the last three months of 2012.

They might finance the state budget for one year, but that's not a long-term solution.

The Greater Sunrise stalemate

- The project was stalled because Timor-Leste and the companies do not agree on how it should be developed.
- Woodside and its partners believed that an undersea gas pipeline to the Darwin LNG plant used for Bayu-Undan would be more profitable.
- Timor-Leste wants a pipeline from Sunrise to Beaçu, to get more jobs and revenues, and to anchor the Tasi Mane project.
- Under contracts and treaties, the companies propose the development plan, but both governments need to approve it.
- Because of Australian spying, TL forced Australia negotiate a boundary treaty, but the 2019 agreement did not settle where the pipeline will go.
- Timor-Leste bought 57% of Sunrise from ConocoPhillips and Shell to control the decision.
- The impacts of Covid-19 have caused companies everywhere to delay or cancel projects. In mid-2020, Woodside devalued Sunrise to zero.
- New leaders in TL's petroleum sector are re-evaluating the project.

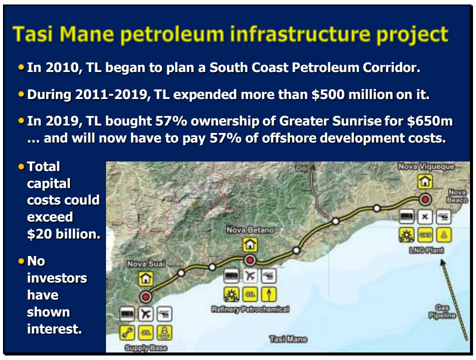


Greater Sunrise was discovered in 1974, but its development was delayed by Indonesia's illegal occupation of Timor-Leste, and then by Australia's continuing occupation of Timor-Leste's maritime territory. After independence, Timor-Leste and the oil companies couldn't agree on a development model – the companies wanted a pipeline to the existing LNG plant in Darwin or a new floating one, and Timor-Leste wanted a pipeline to a new LNG plant on its south coast – so nothing happened.

After the Maritime Boundary Treaty was agreed in 2018, the companies were still reluctant, so Timor-Leste borrowed $650 million from its Petroleum Fund to buy majority ownership of the project.

Developing Greater Sunrise will require at least $10 billion in capital investment, and nobody has come up with the money, so the project is still stalled.

Six months ago, due to Covid-19 and other factors, Woodside, the operator and 33% owner of Sunrise, revalued it at zero.



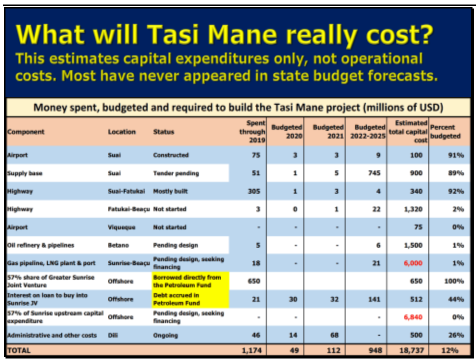
The pipeline and LNG plant for Sunrise are part of the Tasi Mane Project, which also includes an oil refinery in Betano, a logistics supply base in Suai, a 150 km highway, two airports, three new towns, ports, onshore oil pipelines and other components.

Tasi Mane is often presented as a package, but each component should be decided on its own merits, and Sunrise could be developed without the airports, supply base, highway or refinery. Policy-makers have not conducted comprehensive, unbiased, independent cost/benefit/risk analyses of each component's economic, fiscal, social and environmental impacts. They have not compared alternative ways to develop it, or considered the opportunity costs lost by putting all the country's eggs in one basket.

Tasi Mane will create social conflict, use up valuable agricultural land, displace people, worsen public health, and degrade and endanger the environment.

Nearly all of the money spent will go to foreign companies, providing hardly any local jobs or contracts. Worldwide, the petroleum industry creates fewer jobs per dollar than any other investment. According to economist Brett Inder, investing money to improve coffee production in Timor-Leste would employ six times as many workers and stimulate six times as much GDP growth as the same amount invested in Tasi Mane.

In today's economy and oil market, it is probably not financially viable.



What will Tasi Mane really cost?

This estimates capital expenditures only, not operational costs. Most have never appeared in state budget forecasts.

Money spent, budgeted and required to build the Tasi Mane project (millions of USD)

Component	Location	Status	Spent through 2019	Budgeted 2020	Budgeted 2021	Budgeted 2022-2025	Estimated total capital cost	Percent budgeted
Airport	Suai	Constructed	75	3	3	9	100	91%
Supply base	Suai	Tender pending	51	1	5	745	900	89%
Highway	Suai-Fatukai	Mostly built	305	1	3	4	340	92%
Highway	Fatukai-Beaçu	Not started	3	0	1	22	1,320	2%
Airport	Viqueque	Not started	-	-	-	-	75	0%
Oil refinery & pipelines	Betano	Pending design	5	-	-	6	1,500	1%
Gas pipeline, LNG plant & port	Sunrise-Beaçu	Pending design, seeking financing	18	-	-	21	6,000	1%
57% share of Greater Sunrise Joint Venture	Offshore	Borrowed directly from the Petroleum Fund	650				650	100%
Interest on loan to buy into Sunrise JV	Offshore	Debt accrued in Petroleum Fund	21	30	32	141	512	44%
57% of Sunrise upstream capital expenditure	Offshore	Pending design, seeking financing	-	-		-	6,840	0%
Administrative and other costs	Dili	Ongoing	46	14	68	-	500	26%
TOTAL			1,174	49	112	948	18,737	12%

I estimate that Timor-Leste's share of the capital investment needed to build Tasi Mane will be around $19 billion – virtually the entire Petroleum Fund. However, government documents only reveal about 12% of the cost, and nearly half of that is the money borrowed from the Petroleum Fund to buy into the Sunrise joint venture.

The only parts of Tasi Mane that have been built (or even contracted) so far are Suai airport and the first fifth of the highway. The airport is unused and overgrown with weeds, and the highway, which separates people from their families and farms, slid down the hill with the first heavy rainfall. Many people have already been displaced from their homes and farms in anticipation of other Tasi Mane components.

No investors or lenders have agreed to become involved.

Last May, the restructured government replaced the Petroleum Minister, the head of the National Petroleum and Minerals Authority, and the head of the TimorGAP national oil company. The new men say that previous studies were biased, and that an objective, thorough review of Tasi Mane's costs, benefits and risks should be done before proceeding further.

Nevertheless, the 2021 state budget enacted in December expects that construction of the Suai Supply Base will start next year.

An essential foundation for whatever paths Timor-Leste chooses to follow is to enhance the value of its most precious resource – its people. Investing in this young population, through nutrition, education and health care, is an immediate necessity.

In the medium-term, agriculture and local production can reduce imports, while community-based tourism could generate foreign exchange.

Some people in government understand that nothing can provide the $3 billion/year that Timor-Leste once received from non-renewable oil and gas, and that economic diversification is inescapable.

Last August, the government adopted an Economic Recovery Plan for the pandemic, which says:

> *"For Timor-Leste to grow continuously in an inclusive and sustainable way, more and better ways must be found to strengthen its production capacity and diversify its economy outside the oil sector. … [T]he message is simple: we must rely less on our natural resources and rely more on what we can produce with our own sweat, creativity and imagination, which would imply more resources devoted to tourism, agriculture and manufacturing."*

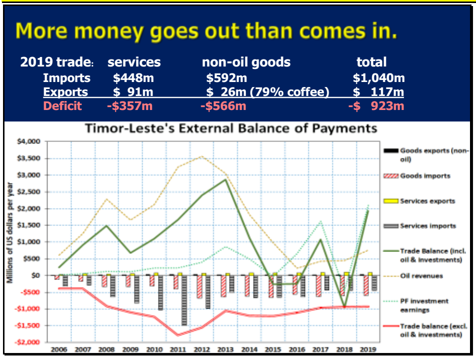
Rui Gomes, who wrote this plan, was appointed as Minister of Finance one month later.

Thank you for your attention.

This presentation is on La'o Hamutuk's website, where you can find a lot more information and analysis on Timor-Leste's evolution.

Many very knowledgeable people are participating in this webinar. I look forward to your comments and questions.

The following slides were not presented during the talk, but may be useful for discussion.



Another way to look at Timor-Leste's economy is to examine the money flowing in and out of the country. We import more than $500 million worth of goods each year, and about the same amount of services. As the red line shows, our non-oil trade deficit is about a billion dollars each year, and hasn't changed much since 2013. The green line shows the balance after oil revenues and returns from investing the Petroleum Fund are added in. This will converge with the red line as the Petroleum Fund is depleted.

In 2007, oil revenues began to surge, a new government was elected, and Timor-Leste's state budget became the second-fastest growing in the world. Expenditures increased ten-fold between 2005 and 2012.