



# Managing natural resource revenues

## **The Timor-Leste Petroleum Fund**

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Alastair McKechnie

**Research Report**



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## Abbreviations

|      |  |
|------|--|
| EIA  | Energy Information Agency                              |
| EITI | Extractive Industries Transparency Initiative          |
| GAPP | Generally Accepted Principles and Practices            |
| IMF  | International Monetary Fund                            |
| IWG  | International Working Group on Sovereign Wealth Funds  |
| OECD | Organisation for Economic Co-operation and Development |
| PF   | Petroleum Fund   |

# 1 Introduction

This note describes the Timor-Leste Petroleum Fund and issues that have arisen in its implementation. This petroleum fund (PF) is considered by commentators and international financial institutions to be a good example of a sovereign wealth fund to manage petroleum resources in a fragile or post-conflict setting. The note contains analysis intended to brief governments in similar settings looking at how to manage revenues from natural resources such as petroleum, minerals, hydroelectricity and forests. Such resources are depletable in the sense that they cannot be easily replaced, or alternatively face a rising cost curve so that developing the current project means its successors will produce more expensive unit output, for example in the case of large-scale hydroelectricity. Exploiting these resources is equivalent to exporting the national wealth – ‘selling the family silver’ – which can either be consumed, for example in expanding civil service employment, or transformed into other assets that generate a stream of income for current and future generations.

The paper proceeds as follows. Section 2 looks at how the Timor-Leste Petroleum Fund works. Beginning with a brief overview of petroleum in Timor-Leste, the section then describes the fund, its asset management systems, estimated sustainable income calculations, its mechanisms for transferring the funds to the government budgets, and its governance. Section 3 looks at the advantages for managing petroleum revenues that the fund has provided, including increased transparency and accountability and the preservation of wealth for future generations. This section also looks at the challenges the fund faces, including the sustainability of governance arrangements, the levels of withdrawals from the fund and the difficulties in forecasting future oil prices. Section 4 outlines the key issues countries should consider when establishing a resource fund. Section 5 concludes that the success of the Timor-Leste Petroleum Fund demonstrates that resource funds are a viable option for countries lacking a strong institutional base to manage resources effectively.

## 2 How the Timor-Leste Petroleum Fund works

### 2.1 Petroleum in Timor-Leste

Timor-Leste became an oil exporter in 2004 when production started in oil fields in the region shared with Australia in the Timor Sea. Petroleum currently accounts for much of Timor-Leste’s economy, with petroleum revenues in 2010 accounting for 73% of GDP, making Timor-Leste more oil dependent than Kuwait.<sup>1</sup> GNP/capita was \$2,908 in 2010, but the petroleum sector masks a country moving from the aftermath of conflict to resilience, yet still remains poor. Non-oil GDP/capita in 2010 was only \$821, yet this represents a nearly 50% increase in real incomes since petroleum exports began.<sup>2</sup> Because of the high levels of poverty and unemployment which remain in Timor-Leste and which affect the current generation of Timorese, the Government has wanted higher investment from the PF than some of its international partners looking to maintain PF assets have advised, a point we return to later.

### 2.2 The Timor-Leste Petroleum Fund

Following six months of public consultation, the PF was established by law in 2005, the first legislation that had been approved unanimously by Parliament (Drysdale, 2010). The Petroleum Law gives the objectives of the PF as prudently managing petroleum resources "for the benefit of both current and future generations, ... in a fair and equitable manner, and gives prominence to transparency in its management" (DRTL, 2005).

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<sup>2</sup> The World Bank database shows that GDP per capita in constant 2000 prices was \$305 in 2003 and \$451 in 2011, and increase of 48%. GDP per capita in current prices for the two years were \$320 and \$896.

Other objectives of the PF include stabilising the flow of revenue and mitigating the risks to the budget and economy from variations in oil prices and petroleum production. While inflows to the fund may be uncertain, the PF's rules target outflows up to a ceiling, the Estimated Sustainable Income (ESI), so that the PF acts as a budget reservoir that smoothes variable petroleum inflows. Consequently, budget revenues and expenditures are insulated from swings in oil revenues. However, Parliament can, and has, approved transfers greater than the ESI through the budget law (see below). Petroleum funds are often designed to limit the risk of Dutch Disease, i. e. the tendency for the real exchange rate to become overvalued so that the non-oil tradable sector would contract, and to avoid rent-seeking governance that would undermine public confidence in institutions (IMF, 2009). In the case of Timor-Leste, the exchange rate is effectively pegged to the US dollar, in which international petroleum trade is denominated. In such an exchange regime, the PF restrains inflation in domestic prices of non-tradeables, or goods and services that are weakly traded internationally because of transport and other constraints on their supply. By delaying the impact of petroleum revenues, the PF prevents the economy from overheating and smoothes out the effect of swings in international petroleum prices.

## 2.3 Petroleum Fund assets management

The PF is designed to receive petroleum revenues into a Central Bank account. The Central Bank manages revenues with the help of external Investment Managers who invest these resources abroad. Originally, 90% of PF resources were to be invested in investment-grade US dollar debt instruments (e.g. bonds) rated at least AA- by Standard & Poor's or Aa3 by Moody's, with the remaining 10% in instruments that the law requires to be issued abroad, liquid, transparent and traded in markets of the highest regulatory standard (DRTL, 2005). This 10% was designed to build expertise in managing more risky assets and to access higher-return investments (Drysdale, 2010). After the disequilibrium in global financial markets in 2008, qualifying financial instruments were changed to allocate 74-78% of the fund's assets to US Government fixed-interest instruments managed by the Central Bank; 19-21% managed by the Bank of International Settlements in low-risk debt instruments, with 80% in US dollars and 20% denominated in the currencies of Australia, Euro zone, Japan or UK; and the remaining 3-5% of the Fund in equities traded on developed markets and managed by an investment bank operating in 'an enhanced passive investment style' (DRTL, 2009; 2010; 2012).

The Petroleum Fund Law was amended substantially in September 2011 to include changes in investment policy for the PF. These were designed to seek higher financial returns through allowing greater flexibility in a more diverse portfolio, but with limits to risk exposure. The amended law now allows up to 50% of the PF to be invested in listed shares traded in regulated foreign financial markets. Up to 5% of the PF would be able to be invested in other investments, including financial derivatives, with the approval of the asset class by the Finance Minister and provision of information to Parliament. The amended law also permits up to 10% of PF assets to be used as collateral for public borrowing within the Government's debt management system, with proper accounting for resulting contingent liabilities in the PF's financial statements. No less than 50% of the PF would still be in bank deposits or investment-grade debt instruments. Two additional firms, Schrodgers and State Street Global Advisor, have been engaged to manage the equities portfolio. While the Central Bank remains the operational manager of the PF, the amended law allows the Minister to determine the manager with the advice of the PF Investment Advisory Board.<sup>3</sup> In May 2012, the PF's investment portfolio of \$10.4 billion consisted of 82% international fixed interest instruments, of which 75% were in US Treasuries administered by Banco Central de Timor-Leste, and 18% in international equities (Banco Central de Timor-Leste, 2012).

In December 2012, the assets of the PF amounted to \$11.8 billion, equivalent to some \$10,700 for every person in Timor-Leste, or around 11 years of non-oil average income (Banco Central de Timor-Leste, 2012). In 2012, the net return on investments was 3.9%, and the rate of return during the life of the PF was 4.05%

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<sup>3</sup> For an unofficial English translation of the amended law see La'o Hamutuk (2011).

(Banco Central de Timor-Leste, 2012). Detailed information on the PF's investment portfolio is published in its annual, quarterly and monthly reports (DRTL, 2011; Banco Central de Timor-Leste, 2012; 2012a).

## 2.4 Petroleum Fund transfers to government budget

PF outflows are transferred from the PF account to the Government's single treasury account in accordance with the appropriated amount approved by Parliament through the annual budget law.<sup>4</sup> In practice, transfers are made at least monthly and in 2012 amounted to \$1,495 million, averaging \$125 million per month, although there was substantial month-to-month variation in the transfers to the budget (Banco Central de Timor-Leste, 2012a). Total transfers for FY2012 were budgeted at \$1,594 million, significantly greater than the ESI of \$665.3, but this transfer was apparently related to payments related to major capital investments mandated in Timor-Leste's Strategic Development Plan (DRTL, 2012a).

## 2.5 Calculation of estimated sustainable income

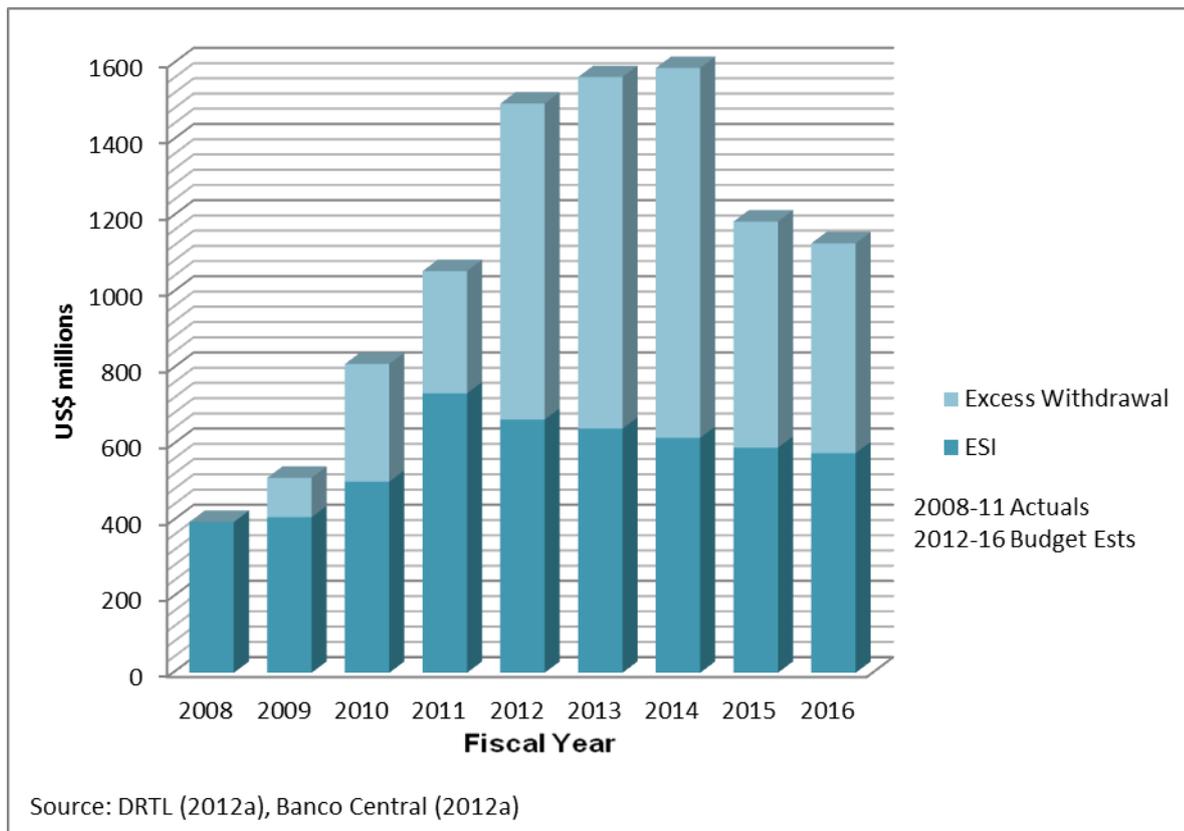
The estimated sustainable income (ESI) is calculated each year in the budget document sent to Parliament and is intended to advise parliamentarians on the appropriate level of sustainable transfers. In practice, since 2009 there have been excess withdrawals from the PF above the ESI (see Figure 1). The ESI methodology is set out in the PF law and depends on forecasts of future annual oil prices that the Government takes from the US Energy Information Agency (EIA) Annual Energy Outlook and other sources, plus its own projections of petroleum production. The Government deliberately takes a conservative view on future energy prices, which are notoriously difficult to project over a long period, to safeguard availability of petroleum revenues in the future. The 2011 Budget document used the average of the US EIA reference and low case crude oil price forecasts. Timor-Leste's petroleum wealth is calculated as the value of the PF in the prior fiscal year plus the present value of the future stream of petroleum revenues, using a discount rate of 3.7%, based on the 10-year moving average of US Treasury bills. The law requires ESI to be 3% of the petroleum wealth in the particular year.<sup>5</sup> The calculation is set out in the budget document. The ESI is forecast to decline as production in proven fields decreases as they deplete, and is not offset sufficiently by rising oil prices. The ESI also varies from year to year as estimates of petroleum wealth change. The ESI of \$665 million in 2012 was 9.4% lower than the ESI of \$734 million in 2011, mainly because of lower production forecasts, changes in costs of production, and changes to petroleum price projections.

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<sup>4</sup> DRTL (2005) Article 7.

<sup>5</sup> See DRTL (2005) Schedule 1. The figure of 3% represents the rate return on low-risk government bonds and has averaged around 2-3% for the past 200 years. The formula was modified slightly in the 2011 amendment to the PF law so that average annual inflows to the PF take place at mid-year. See La'o Hamutuk (2011).

Figure 1: Transfers from petroleum fund to budget



## 2.6 Governance

The PF law sets out transparent governance arrangements which give operational responsibility for the Fund to the Banking and Payments Authority (Central Bank), with the Government, represented by the Minister of Finance, assuming overall authority for the Fund. The Government sets overall policies, including investment policy, for the PF and oversees the performance of the Central Bank which reports to the Minister of Finance on PF matters (DRTL, 2009). As mentioned before, the Central Bank has engaged external investment managers to run investment portfolio windows. Transfers to the budget are approved by Parliament during the budgetary process after the Government provides audited information on the ESI. Parliament can, and has, approved transfers in excess of the ESI, for which the Government must first supply audited information on the impact of these withdrawals on the ESI in future years, and justify why this is in the long-term interest of the country. An Investment Advisory Board has been established under the PF law to advise the Government on benchmarks and risks for investment strategies, instructions to the Central Bank and the performance of the external investment managers. Parliament has the right to request to see the advice of the Investment Advisory Board, and minutes of its meetings are available on the Central Bank’s website, making minutes and decisions available to the public as well. The Advisory Board under the amended PF law consists of five or more members appointed by the Prime Minister on the advice of the Finance Minister; at least three must be experienced in investment. Two senior officials of the Finance Ministry and Central Bank are allowed to participate in meetings, but not vote. The PF law also established a PF Advisory Council to advise Parliament on the performance and operation of the PF, appropriations from the PF and whether these appropriations are being used effectively for the benefit of current and future generations. Membership of this council comprises former Government and Parliamentary leaders and senior officials ex officio, appointees of the Parliament, as well as membership reserved for representatives of civil society, the private

sector and religious organisations.<sup>6</sup> There are requirements in law for regular reporting and auditing. Reports have been of a high quality and the Government has placed a premium on transparency, reinforced by its signing up to international agreements on governance of natural resources and sovereign wealth funds.

## 2.7 International agreements and governance

Timor-Leste is a signatory to the Extractive Industries Transparency Initiative (EITI) and a member of the International Working Group on Sovereign Wealth Funds (IWG). IWG has established Generally Accepted Principles and Practices (GAPP) for sovereign wealth funds, otherwise known as the Santiago Principles, to which Timor-Leste subscribes. These 24 principles include governance of such funds, investment operations, ethical principles and reporting transparency (IWG, 2008). Timor-Leste's PF scores well on international benchmarks of governance and effectiveness of sovereign wealth funds. For example, an assessment by the Peterson Institute for International Economics ranked the Timor-Leste PF sixth out of 44 sovereign wealth funds, many of which were in industrialised countries which score highly on international scales of governance (Truman, 2011). The Timor-Leste PF had an average score on an assessment of compliance with Santiago Principles, although those with the highest scores tended to be pension funds in OECD countries (Bagnall and Truman, 2011). With a score of 70.5/100, Timor-Leste ranked particularly high on the Revenue Watch Index 2010, which measures government disclosure practices in the extractive sector (see Revenue Watch, 2012).

# 3 Advantages and challenges of the Petroleum Fund

## 3.1 Successful management of petroleum revenues

The Timor-Leste PF has achieved its objectives of providing a transparent, accountable mechanism for managing the country's petroleum revenues. Responsibility has been split between the executive, Central Bank and the legislature which reduces the likelihood of funds being used outside the public interest. The PF provides a baseline of predictable funding for the national budget and is well integrated into the budget process, which involves both executive and legislature. Consequently, without parliamentary approval through the budget law, the executive cannot change the proportion of petroleum wealth that is spent each year, or spend revenues outside the budget. The multi-party proportional representation electoral system typically requires several parties to form a governing coalition. This dispersion of political power in a democratic system is a further factor that creates checks and balances in the operation of the PF; PF-related spending priorities are part of the political debate in Timor-Leste (see The Economist, 2012).

## 3.2 Managing petroleum wealth for future generations

This is another area where the Timor-Leste PF appears to be successful, even though there has been some controversy about transfers out of the PF above the ESI (see below). The investment policy outlined in the present law has been modified successfully to adjust to the shocks to international financial markets in 2008. The PF successfully weathered these shocks and large changes to international oil prices.

## 3.3 Sustainability of governance arrangements

While the Timor-Leste PF is well regarded for transparency, accountability and effectiveness, this depends on the country, particularly future governments in power, wanting to maintain this. The future effectiveness of

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<sup>6</sup> DRTL (2005) Articles 16-19 and 25-26.

the Timor-Leste PF will depend on the country maintaining its reputation for transparent, effective and accountable governance. The integrity of the PF depends on the PF law, which could be changed if a future government wanted to extract rents for the kind of patrimonial system that characterises countries suffering from the 'resource curse'. It may not even be necessary to change the law, as excess transfers from the PF above the level of ESI are permitted if Government and Parliament agree.<sup>7</sup> It also depends on the quality of the Investment Advisory Board, which has included three non-Timorese nationals. Creating the political conditions for future governments to continue sound management of petroleum wealth depends on strong demand from the population and civil society organisations, for maintaining good governance of the PF arrangements. The Government has endeavoured to inform the public of petroleum wealth issues and to underpin its commitment through its adherence to international agreements that promote transparency (see above).

The 2011 amendment to the PF law was not without controversy. NGOs and others criticised the amendments on grounds of increasing investment risks through the increased flexibility in choice of instruments and using PF resources as collateral for government borrowing; waiver of standards for external investment managers if they are Timorese nationals; and the increased role of the Finance Minister (see La'o Hamutuk, 2012; Leach, 2012). A \$11 billion PF that might more than double in size is a tempting target for foreign and local criminals, and will require continued vigilance by the Government, Parliament, civil society organisations and local and foreign press. Given the low institutional base of Timor-Leste at independence, and the lack of skilled people with experience in dealing with foreign investments and investors, the praise given for the management of the fund to date is well deserved. However, there are significant risks for the future governance of the PF, particularly when post-independent idealism fades as the first generation of leaders retires from public life.

### 3.4 Withdrawals from the petroleum fund

There has been some controversy around the level of withdrawals from the PF. As Figure 1 shows, the Government has recommended transfers above the ESI to Parliament, which has approved them. The PF was designed using the Norwegian petroleum sovereign wealth fund as a model. Despite the general validity of this model, the Norwegian rate of withdrawal from the fund has been criticised by economist Paul Collier and others as inappropriate for a low-income country (Collier et al., 2009; Collier, 2010). In a country lacking in human capital (education and health outcomes) and infrastructure, the rate of return on marginal investments is much higher than the returns from investing PF resources in low-risk instruments abroad. Furthermore, the current, poor generation is likely to value increases in income more highly than future, richer generations. On the other hand, the World Bank and International Monetary Fund (IMF) have cautioned against amending the PF law to permit transferring money to the budget above ESI limits. They argued that the Government is unable to spend the revenue already available under the ESI formula, that the PF law already allows for transfers in excess of ESI, they warn of the risk of an outbreak of Dutch Disease, and reputational and governance risks of a change in law (World Bank; IMF, 2008). In its recent Article IV report, the IMF questioned the large expansion of budget expenditures and withdrawals from the PF, at around twice the ESI, citing concerns about inflation, absorptive capacity, institutional capacity to implement investments on the planned scale, and future balances of the PF. With existing petroleum reserves the PF would reach a plateau of around \$25 billion with withdrawals equal to the ESI, but this would be only \$15 billion if transfers to the budget were continued at the planned 2012 levels (see IMF, 2012).

Government officials have received mixed and conflicting signals from their international partners on the management of petroleum revenues. Some partners favour increased expenditure in particular areas, for example direct short-term measures to reduce poverty, while others recommend maintaining overall expenditure constraint, for example on infrastructure essential to longer-term growth and prosperity. At the

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<sup>7</sup> Drysdale (2010). See also Anderson (2011) for concerns about the proposed amendment to the law that was being considered at that time.

same time, some partners are encouraging the Government to borrow more from multilateral banks. All this creates a challenge in coordination for the Government, and a challenge in respecting country ownership and sovereignty of policy for the partners.

It is politically tempting for both a government and legislature to approve transfers above the absorptive capacity of the country, since munificence and expenditure may generate public support, before public disillusionment with waste, inflation, Dutch Disease and potential corruption becomes apparent. While withdrawals around 3% of petroleum wealth may be appropriate for a mature economy such as Norway, where marginal public-sector projects may have risk-adjusted rates of return around this rate, it is most likely too low for a low-income country. However, as the IMF and others point out, expanding the budget beyond the point where funds can be spent effectively due to implementation constraints could lead to waste, corruption and inflation. Improving budget execution and strengthening management of public finances therefore becomes an even higher priority in a natural resource based economy. The appropriate ideal level of ESI should probably be higher than 3% and is likely to fall over time, as the Timorese become richer, and returns on the marginal public investment project decrease, as the current backlog of high-return projects is reduced. While this might set the ceiling for ESI, constraints on implementation might suggest an incentive formula in the budget that ensures funding is tailored to the ability of ministries to execute their budget efficiently to achieve effective outcomes. It also calls for rigorous evaluation of expenditures and institutional arrangements which ensure that only projects with high expected returns are selected.

### 3.5 Uncertainty and transfers from the petroleum fund

The ESI numbers are uncertain because they depend on future international oil prices and the level of petroleum production in Timor-Leste. Long-term oil prices are particularly difficult to forecast and most forecasts in retrospect have turned out to have had large errors. While the long-term trend of prices might be expected to follow the Hotelling rule,<sup>8</sup> and increase at the same rate as long-term interest rates (2-3% p.a.), commodity prices generally have declined over the past 200 years. Future resource discoveries, changes in extraction technology (e.g. fracking), and development of substitutes (e.g. lower-cost renewables) might *lower* the trajectory of future prices; the trajectory could *rise* if global oil reserves really did become tight in relation to demand, or production costs increased due to discoveries in difficult locations; or substitution possibilities were limited (e.g. in the transport sector). An extreme view is that it is impossible to predict the future and that unforeseen events with large impacts ('black swans') are likely to occur.<sup>9</sup> This is not helpful to those having to manage a PF, but it does suggest a healthy scepticism towards projections and the need for decision-making that realistically assesses risks. At least as important will be development of new oil fields in Timor-Leste. Only about 50% of the off-shore, and nearly all the on-shore, areas remain to be explored and there are reasonable prospects for future discoveries. Even when exploration has been successful, at what time should a new discovery be considered firm enough to enter into the ESI calculation? So far, Timor-Leste has taken a conservative approach and not counted new reserves in the ESI until they are well proven. The pattern of transfers in excess of ESI suggests that decision-makers may be including these new reserves in their calculus de facto, even if informally. Including them earlier, discounted for risk if necessary, might be more transparent and make higher transfers appear more acceptable to critics of PF management.

'Excess' revenue transfers to the budget from the PF might be a rational choice, considering the high short-term returns to public investment, and the new oilfields planned for development. While the ESI methodology is simple to understand and calculate, a country contemplating a PF might wish to consider a more

<sup>8</sup> The Hotelling rule states that the optimal rate of depletion of a natural resource is equivalent to the real return on low-risk public investment, around 2-3% p.a. in real terms. This is derived using assumptions that may not apply in the real world, e.g. lack of uncertainty in the amount of the resource, no substitutes for the resource, and fixed technology (see Krautkraemer, 1998).

<sup>9</sup> While determination of the ESI has to be on a transparent, logical basis, it does suggest that PF managers need to understand the uncertainties involved and the possibility of major events such as disruption of petroleum and financial markets and unforeseen technological change. See Taleb (2007) for more on "black swan" events.

probabilistic approach to the calculation and a more flexible definition of what constitutes known petroleum reserves.

## 4 Issues for other countries to consider when establishing resource funds

The Timor-Leste PF has worked well and has scored highly on international assessments of sovereign wealth funds. It is a model that other countries wishing to improve governance of their natural resource revenues might wish to consider. The PF has been shown to work in an environment characterised by low institutional capacity after independence, but with strong leadership wanting to avoid the 'resource curse'.

### 4.1 Including all natural resource revenues in the fund

The PF concept is not limited to petroleum and could apply to other natural resources that are being depleted; and where the country wishes to see transparent, efficient and accountable management of revenues and the transformation of natural resource wealth into other assets, human and physical, that benefit both current and future generations. If a country had more than one type of natural resource, for example, minerals, petroleum and forests, it would probably simplify asset management and oversight if there was only one sovereign wealth fund which managed all natural resource revenues. At some time in the future, the sovereign wealth fund could, in principle, also manage the investment of pension contributions.

### 4.2 Political economy issues

A country contemplating a PF needs to resolve political economy problems concerning: short-term pressures to invest; the difficulty of efficient investment and budget execution in low-capacity countries; political pressures to ensure that particular constituencies that may have low capacity or weak governance benefit from petroleum revenues; and that future generations, which have no voice, inherit their share of the natural resource wealth. Flexibility in the share of petroleum wealth that can be transferred to the government budget - the ESI in Timor-Leste - could lead to a breakdown in budget discipline, waste of petroleum resources and the deterioration in governance characteristics of the resource curse. A rigorous approach to determining the ESI that takes account of the conditions in the country when it is designed, rather than adopting good practice from industrialised countries, might make regular transfers in excess of the ESI from the petroleum fund less likely. While the current government might embody transparent, effective and accountable governance, there is little guarantee in any country that future governments will be so exemplary.

### 4.3 Binding governance arrangements to future governments

As the size of a PF grows, the risks increase that future governments might be captured by special interests, or waste national petroleum wealth, for transient political advantage. These risks are likely to be higher in countries moving out of fragility where institutions may not yet be strong enough to resist the extractive interests that seek to control the resources of a PF. International agreements such as EITI++ and the Santiago Principles support those in a government seeking high standards for the management of a PF. However, a future government could renege on such agreements without serious consequences, other than falling out with some development partners whose funding might be marginal compared with petroleum revenues. The breakdown of the World Bank-supported agreement with Chad related to the Chad-Cameroon pipeline illustrates this.

Countries where sustaining the governance of a PF is problematic might wish to modify the Timor-Leste model to make it more difficult for future governments to exploit resource wealth for non-transparent purposes that lead to the resource curse. Countries looking to bind successor governments more tightly to sound management of natural resource revenues might consider other arrangements, such as locking the principles of resource management into the national constitution. However, this also creates rigidities when changes may be needed, as was necessary in Timor-Leste when disequilibrium occurred in global financial markets. Other countries with a limited history and uncertain prospects for transparent, accountable and effective governance may wish to consider options that include bringing independent parties into the management of revenues, such as through co-management or trusteeship options. These could also increase revenues by lowering the risk premium sought by private investors in resource extraction. These might involve balancing the management of the PF between government and independent outsiders, possibly in an offshore arrangement difficult for a government to change unilaterally (McKechnie, 2010).

## 4.4 Level of transfers

The level of transfers appropriate to a country such as Norway, which pioneered petroleum funds, may well be too low for low-income countries where the returns to public investment are higher and where future generations are likely to be better off than people today. Countries without much public investment in the past will almost certainly have investments which would yield substantially higher returns than the return a PF receives from investing abroad in low-risk instruments; even adjusting for the particularly low current yields on financial instruments and stocks in markets in disequilibrium in industrial countries. For example, in Liberia, one-third of a portfolio of 76 road projects had an economic rate of return greater than 800% and two-thirds were above 100% (McKechnie, 2011).

There seems agreement in the literature that public investment in low-income countries should not be attempted faster than the ability of the country to absorb and implement new investment. Otherwise, money from the PF would be wasted in cost overruns, delays, inflation, corruption and other inefficiencies. How to achieve this is in part a technical issue, and in part a political issue. It would be reasonably straightforward to devise a formula that directs resource revenues to high-return projects and well-performing sectors. However, public expenditure decisions also have a political element. Governments in countries where regional inequalities exist, or where there are local centres of independent power might wish to direct public expenditure to avoid conflict and the internal chaos which results. Constraints to the ability of the country to implement new investment may also be political in the sense that critical ministries which could absorb resources for large-scale, high-return projects, such as for infrastructure, could be poorly led and dominated by rent-seeking interests. Putting additional resources into such sectors might not generate high returns to the country and could consolidate rent seeking. In such situations it might be preferable to keep incremental resources for these sectors in the petroleum fund until the underlying political problem can be resolved.

## 4.5 Resource fund transfers and budget management

A country contemplating transfers from a PF above the return on foreign low-risk assets (e.g. greater than 3%) needs strong budget management and a rigorous project selection process. This would ensure that such transfers lead to high return investments that benefit both the current and future generations. It follows that strengthening budget management and execution, as well as programme implementation and management, should be an even higher priority in resource-rich countries. It also follows that ministers need to be able to be held to account for the results obtained from public money entrusted to them. If these conditions cannot be met, the country might want to lock itself into an arrangement whereby a fixed proportion, say 3-4%, of the petroleum wealth could be transferred to the budget each year. To improve investment decisions, countries might want programmes and projects seeking financing from the PF above the base level of transfers to undergo rigorous independent and transparent appraisal before being presented to Parliament. As the backlog of high-return projects is approved for funding, the proportion of the

resource wealth transferred could be lowered to the return on international low-risk investments (say 3%) in five to ten years. Locking this arrangement into a legally iron clad agreement would strengthen incentives for the government to strengthen project management. In addition, transfers from the PF are typically not small in relation to the budget and need to be factored into the country's macroeconomic analysis, particularly with regard to their impact on inflation and the non-resource based economy. Related to this is ensuring that the country receives the resource revenues as set out in contracts with those companies that develop the resource. Timor-Leste has had difficulty verifying that it is actually receiving the correct payments to which it is entitled, an illustration of the broader problems in taxation of transnational corporations which is currently on the agenda of the G8 group of industrialised countries.<sup>10</sup>

## 4.6 Uncertainty in natural resources and prices

Uncertainty in natural resources and prices could lead to transfers that are too low if new reserves are likely, or if the resource will be much more valuable in the future; or too high if the resource becomes less valuable than expected. Resource prices are inherently difficult to predict and the approach adopted by Timor-Leste is defensible. However, there is a policy issue as to when new resource discoveries are included in the country's resource wealth; this is partly a technical issue. A country might want to model the impacts of resource and price uncertainty on resource wealth when deciding on its transfer policy. A highly likely increase in petroleum wealth per capita might allow higher rates of transfers to the budget (see preceding paragraph), which Timor-Leste seems to have done ad hoc.

## 4.7 Investment strategy

Timor-Leste initially adopted a conservative investment policy so that funds were invested mainly in low-risk investment-grade bonds. It also required that all investments of the PF be offshore. A country setting up a fund might adopt a similar approach, avoiding higher return and more risky investments, until it gains experience in managing financial assets and investment agents. It is a challenge for a country with limited experience in managing international private-sector agents to ensure the best balance between risks and rewards and to avoid paying excessive management fees. Most countries would want to seek unbiased professional advice, perhaps through arrangements facilitated by international financial institutions, and Timor-Leste's approach of appointing independent foreign experts to the investment advisory board is probably worth emulating.

# Conclusion

The first six years of operation of the Timor-Leste PF have demonstrated that such funds are a viable option for countries which do not start from a strong institutional base, to manage their natural resource revenues transparently, for the benefit of both current and future generations. The Timor-Leste PF has ranked highly in international comparisons of natural resource and sovereign wealth funds, even among industrialised countries, and is considered a success by independent outside observers. Timor-Leste has managed to achieve democratic governance where one party does not monopolise power, and has benefited from strong leadership following independence. This has been critical for the PF's success. The PF has evolved to respond to the shocks in financial markets and is now seeking returns from more risky investments after returns to investment-grade bonds declined.

There are technical and political issues to determining the appropriate rate to transfer resources out of the PF to the government budget. The Timor-Leste case illustrates that if the calculation of sustainable transfers from the fund to the budget is not well based on the economic conditions of the country, then this calculation will be overruled by government and legislature, which might create precedents which other, less scrupulous,

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<sup>10</sup> See the ABC TV programme on petroleum revenues in Timor-Leste. Fowler and Cronau (2012).

governments could exploit. Worth noting though, is that the Timorese model is highly transparent about transfers to and from the fund, which are subject to democratic checks and balances.

It is likely that the return to marginal projects in a post-conflict country will greatly exceed the returns from investing PF assets abroad. However, in such environments the capacity of the government to spend resources on such projects may not be strong and the risk of generating waste, corruption and inflation is high. Therefore, strengthening public financial management and budget execution is critical, as well as developing a rigorous, independent and transparent process for evaluating investment proposals. A country considering setting up a PF should probably allow core transfers to the budget little more than a few percentage points above the estimated sustainable income of the PF, and no more than experience in budget execution would indicate. It would be risky to allow additional transfers without rigorous programme/project appraisal and close monitoring of their implementation.

As PFs grow in size, they may attract attention from those seeking to exploit them for transitory political or financial advantage, and reputational risks to the government increase. In addition, the capacity to deal with the foreign private sector and promote transparency may not be well developed in a country emerging from armed conflict. This includes verifying that the country receives the revenues in full as specified in the contracts with investors and operators. Governments therefore may want to consider governance arrangements that promote transparency and bring independent expertise into the management of the PF, including creating obstacles to extraction of resources from the PF beyond sustainable levels by future governments, through offshore legal arrangements and a co-managed board.

Few low-income countries have managed their revenues from the extractive industries well, particularly those where capacity is low and institutions fragile. So far, the Timor-Leste PF is an example of how resource revenues can be managed transparently and well for both current and future generations.

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