The Petroleum Fund and Development Strategy in Timor Leste

A Report for Timor Leste's Petroleum Fund Consultative Council

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This is a report on management issues facing Timor Leste's Petroleum Fund (PF) and development strategy in Timor Leste, prepared for the Petroleum Fund Consultative Council.

The paper takes a political economy approach, which combines financial and developmental analysis with economic and institutional context. The aim of Part A is to clarify reform options proposed for the Fund, along with relevant considerations. The aim of Part B is to analyse development strategy, including use of Fund revenues, and the implications.

The paper integrates fund management with broader developmental concerns. It is intended as a resource and discussion paper for the Council.

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Contents

Part A:
The Petroleum Fund: management issues

1.	Founding principles	3
2.	Current Challenges	5
3.	Particular Risk Factors for Timor Leste	8
4.	Sovereign Wealth Funds and development	10
5.	Fund Investment Reform Options	13
6.	Institutional Implications	21

Part B:
Development Strategy in Timor Leste

7.	Development Strategies	22
8.	Strategies in Timor Leste	28
9.	Strategy, debate and the neglected sectors	37
10.	Summary	41

Bibliography 44

Appendices 49-53

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Part A: The Petroleum Fund: management issues

1. Founding principles

The founding principles of the fund are set out in the *Petroleum Fund Law* 2005 ('The Act'), based in turn on Article 139 of Timor Leste's 2001 Constitution, which establishes that natural resources, including petroleum, are owned by the state so that they may used "in a fair and equitable manner" and that a fund shall be created to manage finances from these natural resources:

> "The resources of the soil, the subsoil, the territorial waters, the continental shelf and the exclusive economic zone, which are essential to the economy, shall be owned by the State and shall be used in a fair and equitable manner in accordance with national interests … [and] should lend themselves to the establishment of mandatory financial reserves, in accordance with the law." (s.139)

1.1 Basic principles

On fund management, the Preamble and Article 11 of The Act have similar provisions:

> 'The Petroleum Fund shall be prudently managed … for the purpose of establishing a fund of income … for the needs of both current and future generations." (Preamble)

> "The Petroleum Fund shall be managed prudently in accordance with the principle of good governance for the benefit of current and future generations" (Article 11.4)

These basic principles seem sound and enjoy very broad support.

1.2 Operational mechanisms

To give effect to these basic principles, three operating mechanisms have been created.

First there is a governance structure, at the centre of which is the Minister in charge of finances, an Investment Advisory Board (IAB) and the Central Bank (currently the BPA). The Central Bank has 'operational management' of the Fund, pursuant to an agreement with the Minister, while the IAB has a mandatory role. The Central Bank, with the Minister, may appoint one or more External Investment Advisers. A Petroleum Fund Consultative Council, which may also appoint advisers, is charged with oversight and reporting to the Parliament.

Second, there is a regime (principally Articles 14-15) for investment of petroleum and gas receipts, such as taxes, royalties and dividends. This sets up 'qualifying instruments', fairly specific classes of investments which shall hold "not less than" 90% of the Fund's revenues. In brief, they must be US dollar denominated, fixed interest bonds or other 'debt instruments'. These bonds can be issued by highly rated states or banks. The other revenues of "not more than" 10% can be invested with less restrictions. The intent of this provision is quite clearly to emphasise prudence and minimise risk.

Third, there is a regulated process (mainly Articles 7-9) for withdrawal of revenue, for use in government expenditure. Debits to the Fund can only occur by electronic transfer to "a single State Budget account" after the relevant budget law is approved by Parliament and published. A central pre-requisite for this process is that an audited statement of the Estimated Sustainable

Income (ESI) of the Fund is presented to the Parliament. If any amount over the ESI is to be drawn down by the government the parliament must be provided with a "detailed explanation of why it is in the long-term interests" of the country to do this (Article 9). There are no particular criteria set out for such over-spending.

Schedule 1 of The Act (per Article 2.1.c) defines how a nominal 'ESI' is to be determined. This begins by calculating the combined (a) present and (b) estimated future value of the Petroleum Fund. In 2010 this was based on production from Bayu Undan, the only currently active oil and gas field.[1] This value is then discounted by an amount ('i') which is set as 'the estimated nominal yield on a US Government security'. This is not the quite the same as a discount for general price inflation, as it is focussed only on the value of US bonds. From this combined value an assumed 'average real rate of return' ('r') of 3% is imputed. This is a benchmark figure, rather than a figure estimated as actually 'sustainable'.

As the ESI is a 3% 'benchmark' prescribed by law (Schedule 1), rather than one estimated as actually 'sustainable', calculations over accessible revenue focus on measurement of the combined present and future wealth of the fund. The government says it has been using the 'low' estimates on both volume of production and price, to calculate future value. The discount rate, to help determine a 'real' value of fund assets, is prescribed by The Act as "the estimated nominal yield on a US Government security, averaged over the years in which the Petroleum Fund receipts are expected" (Schedule 1). In late 2009 this was calculated as 2.6% (RDTL 2009: 49).

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[1] When the new Kitan field comes on stream (expected 2011) it will be included in the measures of petroleum wealth; similarly any revenue from the Greater Sunrise gas field and an LNG plant in Timor Leste will be included, when final decisions are made (RDTL 2009: 51)

2. Current Challenges

2.1 Low return environment

The most obvious challenge is the low investment return environment of the past two years, following the US financial crisis. Real returns on US Treasury bonds are low and the net value of the fund was said to have "declined significantly in 2009", when the discount was made (RDTL 2009: 45). There are opportunities in some areas – for example in the new Chinese Yuan bond market, and in Australian bonds – but substantial investment in these fields is limited by The Act. The tie to US dollar denominated bonds (Article 15) restricts bond options.

The nominal 'ESI' continues to provide substantial budget revenue ($502 million in the 2010 fiscal year) but in the current circumstances this is not actually sustainable. With the current discount rate of 2.6%, a nominal return of 5.6% is required for earnings of a 'real' 3%, to meet the 'ESI' benchmark, and so that the Fund is not depleted.

Nevertheless, the use of a nominal benchmark rather than an actually estimated income figure (which could vary wildly from year to year) contributes to stability in fiscal affairs. Further, the prudential controls of The Act are based on sound and well accepted principles which should not be revised in panic, because of a shortfall in investment income in some years. There are risks in any change to Fund management. A careful review may be warranted, but should not be rushed.

2.2 The weaker US economy and a devaluing US dollar

The main structural problem of the Fund regime seems to be its very strong link to US dollar denominated assets, at a time of protracted recession in the US economy and steady devaluation of the US dollar.

Even before the 2008 financial crisis the USA had become the largest capital importer in the world (see IMF 2008), sucking in as much as two-thirds of global savings, mainly through official reserve flows into US bonds. This reliance on foreign savings was supported by East Asia until 2008. That support is steadily fraying. The financial crash also seems to have brought to a head a crisis of confidence in US-led governance (and de-regulated capital market ideas), which had been already weakened by the IMF programs of the 1980s and the collapse of WTO talks over 2003-2006. This has a series of implications for US economic dominance and stability.

Timor Leste may at some later time wish to review its decision to adopt the US dollar as its currency.[2] The more immediate question is the legal requirement (Article 15) to have most of the Fund's assets in US dollar-denominated bonds.

Why is this a problem? First, extended recession in the US means the likelihood of extended low rates. Second, long term devaluation of the US dollar (regardless of bond and interest rates) means devaluation of fund assets.

How do we know this is a long term trend? It is notorious that, despite its huge consumer economy, the US trade deficit and uncompetitive industries have undermined its capacity. The

[2] I note that the state of Ecuador, a decade after adopting the US dollar as its currency, has become the leading advocate for a new regional currency, based on its older currency, the Sucre.

US trade balance has been in deficit since 1977, fell below 3% of GDP in 2000, and below 5% in 2004 (BEA 2005). Despite this trade and industrial deficit, capital imports (reinforced by its privileged position as printer of the de facto world currency), rents through strong intellectual property rights regimes and a huge consumer market maintained the dominance of the US economy. Now with financial crisis and prolonged middle east wars, US budget deficits have added another key element of weakness. In 2008 the US budget - 20% in debt servicing and 23% in military spending – was already in huge deficit (OMB 2006: 36). That was before the bank bailouts of 2008-09.

The effect of this on a shift of international economic power is striking, at the level of current accounts (balance of trade and returns on investment) and reserve holdings, as Table 2.1 shows.

Table 2.1: Global Financial Imbalances, 2008-09

	Current Account deficit % GDP	Current Account deficit $bn	Gross official reserves $bn
USA	-2.9 *	-420 *	130
China	9.8	426	2,354
Germany	6.7	243	178
Japan	3.2	156	1,051

PGI 2010; US data is 'improved' 2009 figures; US deficits for 2004-2008 were around 5% of GDP

The currency implications are now in train. China now holds the largest stock of US dollar assets - around one third of the entire world stock (IMF 2010) – and was the last of the big players to begin to 'diversify' away from the dollar. China does not want a sudden collapse; its reserve holdings ($2.3 trillion) are mostly in US dollars. It has a lot to lose. Similarly, China's current account surpluses shows it does not want a collapse in US consumer power.

Nevertheless, since 2008 the giant Asian economy has been 'diversifying' its currency usage and is looking for a new currency regime that is not US dollar centred. In 2009 Zhou Xiaochuan, the Chinese Central Bank Governor, called for a new global currency linked to the IMF's SDRs, and an expanded basket of currencies (Xiaochuan 2009). It also wants reform of IMF/World Bank governance, to increase the voice of the new economic powers. In advance of a new currency regime China has been engaging in bilateral swaps, using the Yuan. In 2009 it carried out such swaps with Argentina, Malaysia, South Korea, Hong Kong and Indonesia (Simpkins 2009). The combined effect of this and other 'diversifications' might at first appear gradual. In 2009 global reserves were still 62% in US dollars, down from 71% in 2000 (IMF 2010). However new reserve holdings have shifted more sharply. In the third quarter of 2009, new foreign currency reserves were only 37% in US dollars, compared to the 62% average (Xie and Worrachate, 2009). Though there is still a fair degree of denial by some US-based analysts, the steady US dollar devaluation is clear to most others. Italian money manager Fabrizio Fiorini says "the diversification out of the dollar will accelerate"; while Bill Gross, manager of Pimco, the worlds largest bond fund, says "If you have a 5 to 10 years view about the dollar it should be for a weaker currency" (Xie and Worrachate, 2009).

Devaluation of the US dollar will not show up in the current mechanism of determining the real value of Timor Leste's Petroleum Fund, as that mechanism is currently defined by US rates. However devaluation will makes a difference to future international trade and purchasing power. Add to this the relatively weak state of US bonds (see Appendix Table A2) both before and after the crisis and we have a powerful case for delinking the overwhelming majority of Fund assets (90%) from being held only in US dollar denominated bonds (Articles 14-15).

2.3 The 'Honeypot' Fund

At its inception, when there was virtually nothing in the Petroleum Fund, it was easy for everyone to support it as a model of prudence and commitment to future generations. However, now that the Fund holds more than $5 billion, it has become a honeypot of temptation.

Governments will be tempted to overspend, as indeed the government did in 2009 (World Bank 2010a: 71). With poverty and a rapidly rising population, there is popular pressure to see benefits from the Fund. Foreign advisers have been urging extra spending (e.g. Sachs 2010). The IMF and World Bank, champions of bank privatisations, are still getting used to the idea of sovereign funds. Highly paid consultants and fund managers will have a particular interest in getting their share of any financial flows, and therefore advising more liberal use of the Fund. From several directions, there is pressure to 'discount the future value' of the Fund.

In these circumstances, the government and people of Timor Leste are about to review the Fund regime, with its very prudent approach and its strong commitment to future generations. This review will happen under pressure. Some basic political-economic questions will have to be revisited:

- What level of risk can be tolerated, in the search for higher returns?
- Can the fund really last forever?
- Might the Fund's best purpose be to create sustainable income from other industries?
- How can the Fund best meet its commitment to future generations?
- Should a higher priority be given to investing in young people?
- Should there be criteria for drawing more than the 'Estimated Sustainable Income'?
- Which development strategy would make best use of Fund investments? That is, how might the Fund best focus on ways to develop other sources of national and social income?

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3. Particular Risk Factors for Timor Leste

Beyond the general challenges, there are some particular risk factors for Timor Leste.

3.1 Extreme dependence on PF finances

First, the extreme dependence of government on an income streams from the Fund poses particular risks for Timor Leste. In the budget for 2010 the Fund is said to contribute more than 58% of revenues (based on the nominal 'ESI'). However if we deduct foreign donor funding - which is expected to decline sharply in the new few years - and the draw on Treasury reserves, real Timor Leste income contributions provide just a little over 10% of revenues (see table 3.1). From this perspective, there is almost 90% dependency on Fund revenues.

Table 3.1: Combined sources budget – planned expenditure, 2010

Fund source	PF finance	Donor funds	Domestic revenue	AA revenue	Treasury reserves	Total
$m	502	199	77	11	71	859
% of total income	58.4%	23.2%	9%	1.3%	8.3%	100
Source: RDTL 2009: 25						

This amounts to an extreme dependence on the Fund, a problem exacerbated by the recent practice of spending more than the nominal 'ESI'. In 2009 Fund withdrawals were $512 million, exceeding the ESI (of $408 million) by $104 million (World Bank 2010a: 71)

This risk implicit in this extreme dependence is that, if there were a collapse in the Fund's capacity to maintain such revenues, the current high economic 'growth' rates would revert to negative figures. This would mean recession, cuts to public finance, and serious reduction in government services and programs. Timor Leste might again become dependent on patronage and foreign aid. Living standards and independence could suffer. In other words, the stakes are very high for Timor Leste, when it comes to investment risk.

3.2 Limited capacity and external managers

Limited financial management capacity – a small number of trained personnel and relatively new financial systems – combined with the confident assertions of external consultants and financial managers, poses another particular risk factor for Timor Leste. Financial markets are full of salesmen trying to pass off bad debt as sound financial assets. Disclosures following the financial collapses of 2008 proved that. In recent US history, for example, there have been many court cases taken by pension funds against their financial managers, for large losses incurred. It requires a degree of maturity to steer through this field.

There are implicit risks in changing any management regime. Even with limited expertise, it seems important that Timor Leste keeps the management of its prime financial asset quite close to home. This means capacity building and further training of East Timorese public servants who remain directly accountable to the government and the parliament.

There has been some discussion at the BPA about 'diversification' of fund managers, as though more managers would spread the risk. Yet diversification is a concept in finance usually applied

to the wise diversification of assets. There is a risk that additional external managers will add high fee structures and a reduced level of transparency and accountability.

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4. Sovereign Wealth Funds and development

Sovereign Wealth Funds (SWFs) - like Timor Leste's Petroleum Fund - have grown strongly in recent years to become important new players in international finance. Their $3 trillion in estimated funds may be only about 2% of the $165 trillion in globally traded securities, but it is growing fast (Portman 2008). Timor Leste's Petroleum Fund shares some features with, but also has some important differences from, these funds.

There are international debates over SWFs, which have a lot to do with the rising role of developing countries and oil rich states in the world of global finance. In a curious mirror of the concern from developing countries over the leverage by western finance, western governments (the US in particular) have expressed concern over the possible strategic influence of the SWFs (Drezner 2008; Johnson 2007). There have been calls for restrictions to be placed on SWF investments in important infrastructure in the US (Martin 2008), and calls for SWFs to be transparent and 'strictly commercial', so as not to 'distort markets' (Johnson 2007; Martin 2008). Nevertheless, the World Bank seems to have become used to the idea of SWFs as a part of the new financial architecture (Schneider 2010).

Sovereign Wealth Funds, because of their origins and potential have also been said to constitute potential Sovereign Development Funds (Santiso 2008). Why? What makes them potential builders of development? There are several strategic elements.

First, they can mobilise the savings or excess resource wealth of a nation in international reserves, thus avoiding excess appreciation of the local currency, and the trading disadvantages that come with that. This does not apply to Timor Leste, which has adopted the US dollar as its national currency.

Second, SWFs can be used for strategic investment in human resources (mass education and training) and infrastructure (roads, energy, water), the typical deficits of developing countries. We can see this in Venezuela's FONDEN (Fondo de Desarrollo Nacional) which has more than $58 billion (from oil revenues and 'excess' foreign reserves) for public infrastructure projects. I note here that - because of its large oil and gas reserves and developed levels of production, refinery and distribution - Venezuela has huge financial capacity and, unlike Timor Leste, does not have to worry too much about investment income for the next budget. Further, this investment is in coordinated public projects and not (as is the fashion elsewhere) contracted out to a range of semi-privatised projects.

Third, the approach of some SWFs is to emphasise 'transparency' (public disclosure) and to aim at a high degree of public participation. This seems to be one of the lessons borrowed by Timor Leste from the Norwegian experience. This adds legitimacy to the process and hopefully counters trends towards waste and corruption. However Norway's large oil-based fund (Norges Bank Investment Management) has some important differences from Timor Leste's Fund.

Table 4.1: Notable features of select Sovereign Wealth Funds		
Name (year est.)	**$bn**	**Notable features**
Kuwait: Kuwait Investment Authority (1953)	202	The Kuwait Investment Authority (KIA) is the parent of the London based Kuwait Investment Office (KIO) which manages the 'Reserve for Future Generations' and the 'General Reserve Fund'. The Kuwaiti government transfers 10% of oil revenues to the KIA, which has set up a number of investment and property enterprises.
Singapore: GIC (1981)	247	The Government of Singapore Investment Corporation (GIC) manages the country's savings in three corporations under the Ministry of Finance: asset management, real estate and special investment. The GIC is regarded as a strategic investor, with a great deal of 'in house' expertise.
Norway: NBIM (1990)	474	The Norges Bank Investment Management (NGIM), formerly the Petroleum Fund of Norway, is the world's second largest SWF. It moved strongly into equities (50% by 2008) but is heavily regulated and has strong investment expertise. It suffered losses over 2008-09, but recovered to post positive returns for 2009 overall.
Australia: Future Fund (2006)	59	Australia's Future Fund was set up to manage the government's budget surplus. Run by a board it invests in a range of assets, including about 25% equities. Despite share losses in 2007-08 it maintained a return of 1.54%, from cash and bonds. It is cautiously building investments in property, shares and infrastructure.
Brazil: Fundo Soberano do Brazil (2009)	9	Brazil's FSB began recently with foreign reserves but may later have oil funds from the country's new discoveries. Its aim has been to protect the country from financial crises. It will begin with a conservative strategy, emphasising bank bonds rather than equities.
Alberta, Canada: Heritage Fund (1976)	14	Alberta's Heritage Fund gets its assets from oil and invests "for future generations", to strengthen and diversify the economy and for "a rainy day". It invests in stocks, bonds, property and alternative investments. It lost 6% on the stock market in 2008.
Botswana: The Pula Fund (1996)	7	The Pula Fund holds excess diamond wealth in foreign currency assets. Investment aims are to maintain the value of reserves 'for future generations' and maximise returns within acceptable levels of risk. Development strategy requires expenditure from mineral wealth to be kept below 50% of the budget and minimal public debt.
Venezuela: FONDEN (2005)	58	After a small Macroeconomic Stabilisation Fund (FEM) in 1998, based on oil revenues above a certain price, Venezuela set up the Fondo de Desarrollo Nacional (FONDEN), under its Ministry of Planning. It mainly finances public infrastructure projects. A network of other public banks also manage surpluses from oil.
Trinidad and Tobago: HSF (2007)	3	Trinidad and Tobago's Heritage and Stabilisation Fund (HSF) uses oil revenues to stabilise public finances and to provide for future generations. Current investments are 80% in fixed income and 20% in equities. Returns were 3.61% (2008) and 2.79% (2009). In 2011 they aim to raise equities to 35%, half US and half non-US.
Timor Leste: Fundo Petrolífero (2005)	5	Timor Leste's Petroleum Fund (FP) was set up in 2005 to prudently provide for current and future generations. In 2010 its assets were held 95% in US bonds and 5% other bonds.
Sources: SWF Institute 2010; Santiso 2008; Pearson 2009; TTHSF 2009; Tumelo 2009; Ekeli 2008; PF 2010; Caner and Grennes 2010		

The Norwegian Fund, for example, operated under strict limits for its first decade, before gradually taking on more risk. It then increased its equity ceiling from 40% to 60% in 2007, with actual equity reaching 50% in mid 2008 (Caner and Grennes 2010: 602). However this fund is very strong in human resources and the state is not so highly dependent on oil revenue as is Timor Leste. After heavy losses on stock markets in 2008-09 the NBIM was able to recover, due to skilful management (NBIM 2010). Timely responses were important. A fund with less expertise, such as Timor Leste's, would probably not have done as well.

Looking at the other SWFs (Table 4.1) we can see common themes - of financial stabilisation, prudent management and provision for future generations. On the investment side there is a general trend towards diversification of assets, although even some fairly wealthy countries (e.g. Brazil and Australia) take a cautious approach regarding risk. At the same time, the funds do have differences of emphasis. Despite some similarities, the SWFs reviewed here vary in:

- their financial scale,
- their levels of dependence on fund income streams,
- their management expertise (and human resources generally), and
- the aims and objectives of the funds.

Those countries which have less reliance on their SWF for year-to-year budget finance (e.g. Venezuela) can better afford to invest directly in local infrastructure, and focus less on financial returns. Those countries with high levels of skilled personnel (e.g. Norway) can better manage higher levels of exposure to volatile stock markets.

In the case of Timor Leste's SWF, it is relatively small, has limited levels of financial expertise and state finances have rapidly developed extreme dependence on Fund revenues. Investment strategies should take note of these particular features.

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5. Fund Investment Reform Options

It seems that review of the Fund's investment provisions is necessary. However with a growing fund and responsible government, this review can be calm and considered.

In view of the public debate and five years experience with the Fund, there is a need to confirm or modify its basic principles, taking into account the general challenges and particular risks.

This report suggests there is a particular need to review the requirement that most of the Fund's assets be held in US dollar denominated assets. In any case, it is worth looking more closely at the range of investment options, and their implications.

5.1 The status quo

One possible outcome of a review, after it has passed all the relevant parliamentary and governmental processes, is to make no change either to the investment regime or to The Act.

Despite dissatisfaction with current investment returns on the Fund, this is a plausible option, with some evidence to back it. In the first five years of Fund, and despite returns not reaching the nominal 'ESI' (this would have required 3% plus about another 3% to meet the discount requirements of the period = 6% return), the Fund's assets have been well protected and have grown. The system has mostly worked as intended, and the management capacity of the BPA has nearly doubled (Alves 2010).

The status quo option has some empirical support from the Ministry's of Finance's Petroleum Fund Adviser Mr Vidar Ovesen who, referring to a model from Towers Watson, asserts that, for the 2005-2010 period, "no other investment strategies than the current one would have performed better" (Ovesen 2010: 7).[3] In other words, the conservative 'bonds only' strategy served the Fund well, at a time of great turbulence in financial markets, when there were big losses in stock markets. At the end of 2009 the Fund's assets were still 95% in US bonds and 5% in other government or supranational bonds (Petroleum Fund 2009: 2).

After five years the fund's managers had made very little use of the statutory 10% that was open for investment in a wider range of options - such as bank bonds or equities. So the status quo option still allows for some cautious diversification in investment instruments. And it offers good prospects for continued protection of the assets of the Fund, at a time of uncertainty.

However, future prospects for meeting the nominal 'ESI' requirements of a 'real 3% return, based on 90% investment in US bonds, seem very poor. This assessment is not just because of the historical performance of US Treasury bonds (e.g. Ryan-Kane 2010: 8, 14) but more particularly because of the present and near future dilemmas of the US economy and the US dollar, as outlined in section 2 above.

Maintenance of the status quo, however, would require reconsideration of the nominal 'ESI', as US Treasury bonds will not deliver a real 3% return in the foreseeable future. If the Fund is not to be depleted, consideration should be given to revising this nominal 'ESI' down to 2%.

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[3] However this judgment seems to be based on the limited equity-bond choice presented by the Towers Watson study, without taking into account diversified bond investment options.

5.2 Diversified Bond Investment

Relatively risk-free bonds have been the mainstay of the fund and - although facing the particular problems of the tie to US dollars – bonds seem likely to remain the mainstay of Timor Leste's Petroleum Fund investment. The question is: in what way and to what extent? The answer to that really depends on what future can be seen in bonds.

Let's see what additional value could be extracted from the bond portfolio, which has the important advantage of lower risk. The other advantage of bonds is that their returns are entirely predictable, and not subject to variation around a theoretical average, as with equities.

If investment diversification is to be pursued but prudential controls maintained, the first constraint to be addressed would be statutory dependence on US dollar denominated bonds.

The evidence for this is fairly plain, both in the short and longer term. In 2010, US Treasury bonds provide returns of about 1.5%, while Euro bonds provide returns of between 3.1% (Germany) and 4.2% (Portugal) (ECB 2010). Australian bond rates were 5.4% (RBA 2010).

On this basis, there is a significant additional margin (from 1.5% to nearly 4%) to be made by moving from US bonds into select Euro and/or A$ bonds. Little risk is attached and just a small amount must be added to account for currency exchange fees and some forex risk insurance.

Naturally, no analysis can base itself on any one year's figures; so let's look at some averages over a longer period.

The Towers Watson model - which argued for a strong move out of US Treasury bonds and into equities - painted a gloomy picture for bond investment. Based on a single timeframe (of 110 years) and one set of bonds (US Treasury bonds) it suggested that the historical average real returns of 1.7% meant that bonds were highly unlikely to return the 'ESI' benchmark of 3%, after discounting for inflation (Ryan-Kane 2010: 8, 14).

There are two problems with the Towers Watson approach to bonds.[4] First, a time frame of 110 years was used. Yet there have been substantial institutional changes over that period. In particular, the financial deregulation of the 1980s was associated with a rise in real rates. Second, no other bond returns (e.g. Euro or Australian dollar) bonds were calculated. If they were, the results of the model would have been different. The Towers Watson report did acknowledge potential benefits from diversification, including "exposure to currencies other than the US dollar as "desirable to preserve the purchasing power of the Petroleum Fund" (Ryan-Kane 2010: 20)

Let's look first at the effect of different timeframes. Table 5.1 shows nominal returns on US dollar bonds over (roughly) seventy, fifty and forty years periods, including offshore ('Eurodollar') rates. The first thing to observe is that average returns on US bonds in the more recent period (since the 1960s and 1970s) are higher than when the earlier, more highly regulated

[4] Though a fundamental problem was the lack of any source or model assumption referencing in the Towers Watson presentation – or at least in that version provided to the public. This makes the analysis non-transparent and impossible to verify. Fortunately the data used is very general and easy to access through other sources.

period is included (1920s-1960s). Despite the more recent crash in US bond returns, rates were much higher in the 1980s, and remained fairly high through the 1990s (See Appendix Table A1).

Table 5.1: Bond rates - distinct timeframes (average nominal rates)				
	US T-bonds, 1962-2009, 3 year rates (1)	Eurodollar 6 month rates, 1971-2009 (1)	US Treasury 20 year bonds, 1926-1999 (2)	US Treasury 20 year bonds, 1972-1999 (2)
average return (% pa)	6.4	6.8	5.1	8.7
Sources: (1) US Federal Reserve 2010 (2) Jagannathan, McGrattan and Sherbina 2000, p.17				

None of this is an argument for maintaining the link to US Treasury bonds, but rather to indicate the problem of relying on long historical averages for ideas about future performance. The recent institutional lessons should rather be – (i) bond markets have performed more strongly in recent decades, but (ii) less so in the last decade and (iii) there are foreseeable future problems with the US economy and US dollar.

Let's now look at comparative rates, in particular Australian and US bond rates. Looking at averages across forty years (1970-2010) we can see that two classes of Australian Treasury bonds and short term bank bills have maintained 2.5% higher average rates than US treasury bonds (Table 5.2).

Table 5.2: Australian and US bonds, 1970-2010 (average nominal rates)				
	Aust. 90 day bank bills	Aust. 5 year T-bonds	Aust. 10 year T-bonds	US 1 year T-bonds
Average returns (% pa)	8.8	8.8	8.9	6.3
Source: Reserve Bank of Australia 2010; US Federal Reserve 2010				

While rates are not so high now, these historical figures suggest that there is a premium (a higher return) to be made on investment in Australian bonds. Indeed, if this historical experience is any guide, and even if the discount/inflation rate were as much as 5%, Australian bonds would still meet the nominal 'ESI' benchmark (8.8 – 5 = 3.8%).

There are also emerging bond markets, in the changing financial world. Chinese Yuan bonds have been sold from 2009, and rates in 2010 were similar to those in Australia, at around 6% (Bloomberg 2010). The longer term advantage in a Chinese bond market is that the Yuan/Renmibi is universally recognised as being undervalued. Yuan bonds, apart from having higher rates than US dollars, will carry the added premium of an appreciating currency. The same could not be said for the Australian dollar, which is a relatively minor currency closely linked to commodity prices. In the short run, though, Australian bonds are a secure and high return option. In the longer run Yuan bonds may have substantial advantages.

In the Euro zone, which has a shorter history, bond rates have been higher than those in the US, in recent years. Average returns on Euro bonds between 1994 and 2010 range from 3.2% (in

Germany) to 4.5% (in Portugal) (European Central Bank 2010). Diversification into short to medium term Euro bonds would provide a strategic buffer (e.g. in case of a sudden devaluation of the US dollar) as well as an additional option to build the Fund's diversification premium.

This report suggests diversification in bonds should be a central consideration in any review of Fund investment regime. Extracting greater value from bond investments – which are likely to remain the main part of the Fund – maintains the prudent approach of the fund, and can add value while adding little risk. The evidence suggests a real return rate of 3% can be extracted from non-US bond investment. Diverse bond investment would require only a small additional cost in currency exchange fees and forex risk insurance. Of course, moving beyond 10% in non-US dollar bonds would require amendments to Articles 14 and 15 of The Act.

5.3 A strong move into 'equity'

Nothing in the above discussion precludes other forms of investment diversification. Timor Leste's current regime allows for more diverse forms of investment, up to 10% of the Fund. That flexibility has not yet been utilised. At the end of 2009 the Fund had zero investment in equities (Petroleum Fund 2009: 2).

What about a stronger move into equities (stock market) investment? That is the argument presented by the Towers Watson advice, which presents reform options as a rather stark choice between bonds or equities.

> "The key decision is the split between equity and bonds – everything else is second order … An allocation to equities of **at least** [emphasis in the original] 25% is required to achieve a long term real return of 3%, the current ESI" (Ryan-Kane 2010: 14).

Table 5.3 summarises the historical averages relied on for this assertion.

Table 5.3: The Argument for Equity Investment

	100% USG bonds	Current	25% US Equity	40% US Equity	60% US Equity	80% US Equity	100% US Equity
Geometric real return (% pa)	1.7	2.0	3.1	3.8	4.7	5.5	6.1

Source: Ryan-Kane 2010, p.8 (based on 110 year averages)

This report has pointed out the additional option of diversification in bond investment, and that some bond instruments can surpass the benchmark of a 3% real return rate. But let's now look at the argument for a strong move into equities. After all, this is what the influential Norwegian fund has done, more recently.

The Towers Watson argument, as presented by Peter Ryan-Kane, was to say 'yes, there is increased risk' in equities investment, but there are proven higher average returns in longer term equities investment.

> "There is a clear trade-off between risk and return – strategies with higher allocations to equities are exposed to higher risk … but are expected to out-perform less risky portfolios in the long term" (Ryan-Kane 2010: 13).

There are diminishing returns on exposure to risk. So, for example, "increasing the equity exposure from 25% to 40%" provides greater benefit to risk than "increasing the equity allocation from 60% to 80%" (Ryan-Kane 2010: 14). We might take this as an indirect argument for an equity investment of around 40%.

In his presentation, Peter Ryan-Kane stressed that the Towers Watson model had taken into account all the stock markets crashes, including those of the 1930s and 2008. The longer term averages (the 110 year model) took all the ups and downs into account. People did not necessarily 'lose' in stock market crashes, unless they pulled out too soon and 'realised' their losses. The value of stocks overall could and did recover. In his view 100% equity investment was the superior option (Ryan-Kane 2010a).

There are a number of problems with the Towers Watson argument on equities.

First, it is implausible to say that increased risk exists in equity investment, but that there is no likelihood of losses, in the longer term. The average returns on stock markets do not indicate actual returns (as opposed to average bond returns, which are firm), because they average out those who have lost and those who have won. As no-one invests in the entire stock market, investment groups make distinct decisions within those markets which can have winning or losing consequences. Many pension funds, for example, following optimistic advice about stocks, incurred large losses in recent years. In recent years, some of them have successfully sued their advisers, including actuarial firms, for misleading and over-optimistic advice.

Second, Timor Leste's high risk profile (extreme fiscal dependence on the Fund combined with limited financial management capacity) deserves more specific consideration than that of global averages. The Fund would be less prepared to deal with a crisis than was Norway's fund. Being either dependent on external managers or less able to respond decisively, the Fund could well be a loser in any future financial crash. Further, the fact that the Fund is already being overdrawn shows that the country's determination to stay in stock markets in the long term may be in doubt. There could well be pressure to withdraw and realise losses.

Third, the past century or so of returns on US equities[5] is not a good guide to the next decade or two. First there is what has been called 'the declining US equity premium'. This refers to the diminishing extra return on US equities as compared to US bonds. Empirical studies have shown that this premium "declined significantly during 1970-1999" (Jagannathan, McGrattan and Scherbina 2000: 14). In other words, the margin by which US equity returns outperformed US bonds in the late Twentieth Century has been declining. However for most of that 'American Century' equity returns had been high. Fidelity International prepared data on equity returns in 18 wealthy countries, showing US returns to be amongst the highest. I have chosen seven of these figures to illustrate the spread of returns, across major stock markets, in table 5.4 below.

Table 5.4: Equity returns in seven wealthy countries, 1900-2009

	Italy	Germany	France	Norway	UK	US	Australia
Av real rates of	2.07	2.98	3.07	4.14	5.28	5.88	7.5

[5] Towers Watson 2010 suggests this is 6.1%; Fidelity International 2010 puts it at 5.88%.

returns, p.a.							
Source: Fidelity International 2010 (More data appears in Appendix Table A4.)							

From these figures we can see that real rates of return in Italy, Germany and France were not nearly so high as in the UK or the US. However that is now changing. Given the decline of the US equity premium in the late 20th century, the more recent troubles of the US economy, and the relatively superior performance of (for example) German production and trade (see Table 2.1 above), the early 21st Century could see a reversal of some of these trends.

So what if US equity returns, over the next decade or two, resembled more those of Italy (2.1%), Germany (3%) or France (3.1%) in the past century? The Towers Watson simulation, based on US historical data, would be meaningless. They would have to revert to calls for a more internationalised view of equity, and start their model all over again.[6]

In summary, there are higher returns to be made on equity investment, but the risks are higher and there is ongoing uncertainty in financial markets. General risks need to be viewed alongside these particular considerations:

- financial markets are still in a state of considerable uncertainty and restructuring,
- Timor Leste has extreme dependence on its Fund, and is gradually building its management capacity,
- The depressed nature of global equity markets mean that the potential 'rewards' for risk taking are more limited.

A move from zero investment in equities to 40% investment in equities would be a sudden move, leaving Timor Leste quite reliant on the expertise of external fund managers. This in itself holds additional risk, as discussed above in 2.3 and 3.2.

Nevertheless, a small and gradual expansion of investment in equities, proportionate to local management capacity, would seem to be a natural part of a cautious diversification strategy. The exercise would also add to the experience of the BPA team. The cost of any additional training for and recruiting to the team would be more than offset by forgoing external mangers' fees.

So an alternative to a strong push into equities, sub-contracted to an external investment manager, would be to develop a small locally-managed investment portfolio. This could either operate within the 10% currently allowed by the Act; or it could develop gradually into a higher 'ceiling' of say 20%. The latter option would require amendments to Articles 14 and 15 of the Act.

5.4 Securities

It has been said that the Fund can gain extra income from allowing its assets to be collateralised on 'securities' markets. This is currently banned by Article 20 of the Act, which prohibits any 'encumbrance' (form of co-ownership) being placed on assets of the Fund.

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[6] Towers Watson does point out, twice, in their final disclaimer, that "past performance should not be taken as representing any particular guide to future performance" (Towers Watson 2010: 22). However this is the 'fine print'. The central part of their analysis relies on predicting future returns based on long term historical trends.

Securities are a variety of financial instrument which offer evidence of debt or equity, for example in housing mortgages or in a sovereign wealth fund. This evidence is then used to build secondary loans which are often far removed from the original asset.

However securities have been associated with the most unstable of asset - Collateralised Debt Obligations (CDOs). These CDOs were at the root of the 2008 US financial crisis. Most risk attaches to those investing in such ‘junk bonds’. However, as the bankruptcy of Lehman brothers in 2008 shows, good assets can also be exposed. More recently, Goldman Sachs has been investigated for fraud over CDO related securities trading (Spitzer and Black 2010). This form of investment certainly carries more risk than bond investment.

5.5 Direct Investment Options

A diversification strategy should also consider direct investment options, in particular direct investment in domestic or foreign property assets, and direct investment in highly productive monopoly industries within Timor Leste. Such investment could form part of non-bond investment, within the current 10% limit, or under any amended ‘ceiling’.

5.5.1 Domestic and foreign property assets

Direct investment in domestic or foreign property assets could be considered. The main considerations would be whether the asset is secure, and whether it is capable of providing a steady net rental return better than the best of bond investment. That would normally mean a net, nominal return of 6% or more.

Property investment and access to rental returns forms part of many diversified investment strategies. The main disadvantage is that the asset is less ‘liquid’ (cannot be changed rapidly). The advantage is that it can be stable and reliable factor in an investment portfolio.

5.5.2 Highly productive monopolies within Timor Leste

Direct investment in highly productive monopoly industries within Timor Leste - such as telecommunications, banking and gas refinery - is a legitimate means of tapping domestic spending and recycling it within the country. Why seek returns on foreign investments, without looking at high return industries within Timor Leste?

Highly productive monopolies typically return 15% or more. Nevertheless, as with property investment, the test would be whether the industry is capable of providing a steady net rental return better than the best of bond investment, that is, of 6% or more.

The state can require ceding, or purchase, of a percentage of shares in such industries, as a condition of their license within Timor Leste. Legislation is probably necessary. Productive monopolies, in any case, are generally regulated by the state, by way of regulating ‘competition’, price capping, or through quality, environmental and other controls. Nevertheless, the main argument for public equity is simply to share the ‘rents’ from these highly productive monopoly industries with the East Timorese people.

5.6 Summary - the hybrids

In practice any revised investment regime will be some type of hybrid; but which type? Here are several options for consideration, drawing on the categories discussed above.

5.6.1 The status quo

No change to the Fund's investment regime would mean maintaining a priority on asset protection and prudent control. There is still room to make use of the more flexible 10% portion for other investment options. However as returns are likely to remain low, consideration should be given to lowering the nominal 'ESI' (alternatively, lowering the amount drawn on for government revenue) to 2%.

5.6.2 Diversified bonds

A move into diversified bonds would retain most of the prudential approach of the current regime, while allowing investment (up to 90%) in bonds denominated in currencies other than US dollars. An actual 3% real return is attainable, as the figures in 5.2 demonstrate. In addition, there is room within the remaining 10% for more diverse investment. Amendments to Articles 14 and 15 of the Act would be required.

5.6.3 Diversified bonds plus

A 'diversified bonds plus' approach would combine the above option with cautious expansion of direct investment and equities options, while slowly building domestic financial management capacity. The current 10% 'ceiling' on non-bond investment might be maintained, or it could be lifted to 20%. Real returns of 3-4% are attainable. Amendments to Articles 14 and 15 of the Act would be required.

5.6.4 Strong move into Equities

A strong move into a foreign based stock market portfolio suggests a rapid move from the current 0% to 25% or 40% in equities investment. The Fund would retain 75% or 60% in bond investment. Securities investments might be added. This is the highest risk option and, as the move implies reliance on one or more external fund managers, an additional risk in lessened accountability. Returns could be 4% (or more, if combined with a diversified bond portfolio) but there is also the real possibility of losses. Amendments to Articles 14 and 15 of the Act - and Article 20, if securities are to be pursued - would be required.

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6. Institutional Implications

6.1 Amendments to the Act

Options 5.6.2 and 5.63 above would require amendments to Articles 14-15 of the Act, to allow for diversified investment in bonds including those which are not denominated in US dollars.

Option 5.6.4 (and perhaps also 5.6.3) would require an amendment to the Act to allow for higher levels of non-bond investment.

If it were thought desirable to include some securities investment, Article 20 of the Act would have to be amended, as it currently prohibits any ‘encumbrance’ (additional ownership interest) being placed on the Fund’s assets.

While the current use of a ‘benchmark’ figure (in Schedule 1 to the Act) for the ESI seems reasonable, the name is misleading. Any benchmark is indicative rather than ‘estimated’. There is currently a confusion between the introduction of ‘Estimated Sustainable Income’ in Articles 8 and 9 of the Act (where it might refer to an actually estimated figure) and the use of ‘Estimated Sustainable Income’ in the Schedule, where it has become a nominal, benchmark figure.

Consideration might be given to changing its name to ‘Nominal Estimated Sustainable Income’ (NESI) or Nominal Sustainable Income (NSI), so that the public does not confuse real returns on the Fund with the benchmark.

If investment is to be made through a wider range of currencies, the discount rate (‘i’ of Schedule 1) should also be revised, perhaps on a trade weighted basis.

6.2 Fund Management

Diversification of Fund investment requires increased capacity in the BPA, both in terms of training and personnel. Building the capacity of the BPA team seems more in line with the National Development Strategy than increasing reliance on external fund managers. Building domestic capacity in financial management might best parallel the gradual expansion of investment options. This requires some investment in and expansion of the BPA team.

This report suggests that ‘diversification’ of investment instruments not be confused with ‘diversification’ of managers. We see no advantage, but rather increased costs and lessened accountability, in a multiplicity of external fund managers.

– END of PART A –

Part B: Development Strategy in Timor Leste

7. Development Strategies

This chapter looks at three categories of development strategy, along with some international experience. The UN declaration on a 'right to development' sets a number of goals; but how are these to be attained? The controversies over the means of development requires consideration of the main approaches.

Three broad strategies can be defined: the private investor-led 'market economy' approach, the 'developmental state' model; and those approaches which emphasise human development. Of course hybrids of these strategies exist, but it seems useful to identify their distinct ideas and views on sectoral development (education, health, agriculture, infrastructure, the economy), some notable international experiences, and the challenges facing each approach.

7.1 The private 'market economy' approach

The private investor led 'market economy' approach to development – advocated by the western powers – often expresses a unified economic goal, such as 'broad based growth'. It draws on the 'open market' ideas of the 19th Century European neoclassical economists (Jevons 1871; Menger 1871; Walras 1874), supplemented by mid 20th century ideas on the 'macroeconomy' and its management (Keynes 1936). These can be called 'economic liberal' ideas and are promoted by various financial institutions. The World Bank (2009) developed the ideas of 'pro poor growth' and 'inclusive growth', in response to criticisms that the poor do not benefit and are excluded from growth strategies. The emphasis remains on generalised economic growth.

Key ideas include the notion of 'comparative advantage' (Ricardo 1817), which encourages specialisation and trade. The idea is that countries should specialise and trade in what they produce best, rather than diversify their production, or aim at some form of self-sufficiency. It can be mathematically proven that such specialisation can facilitate expanded production and trade, leading to economic growth, the touchstone of any 'market economy' strategy. Large corporations like 'open market' ideas, as their operations typically add to formal economies.

However developing countries are not mathematical equations, nor are their interests identical with those of large corporations. 'Broad-based' growth arose in recognition of the dangers of extreme specialisation, as in the so-called 'banana republics', which had faithfully followed 'comparative advantage' but suffered economic crisis when prices for their single cash crop fell. So the need for some diversification was accepted. The developmental implications of 'comparative advantage' were also questioned, as the idea addresses a short term opportunity but does not explain how a country might actually improve its productive capacity. Upgrading capacity is, of course, a key concern for developing countries.

Economic liberals speak of a minimal economic role for the state, and oppose public investment which might 'crowd out', or compete with, private investment (e.g. Spencer and Yohe 1970). Community or customary land should also be registered and commercialised, according to this

view. This approach has led to calls for the state to merely create an 'enabling environment' of laws, security and infrastructure, to suit the needs and interests of private investors.

The economic liberal view of education, health and social security is that the state should minimise its commitments and introduce 'user pays' and privatised services, to encourage 'consumer' participation and market formation. Social services might be offered as a minimal 'safety net', in recognition of the exclusion of poor people; but 'open market' ideas oppose systems of social guarantees, or comprehensive public welfare systems (see e.g. Calomiris 1997).

Greater commercialisation of services leads to greater employment and economic growth. Free services, on the other hand, are said to create laziness and a dependent mentality. The behavioural assumption here is that it is good for people to feel some pressure to participate in markets, as they better value and more effectively use the goods and services that they purchase.

A major problem with this approach is the unaffordability of (or 'uneven access' to) basic services for large sections of the population, particularly children. Reliance on open markets always favours wealthier people and, in developing countries, excludes large sections of the population. Aid programs aim to fill this gap, but bring their own problems, including inflationary 'bubble economies', dependency and 'aid trauma' (Middleton and O'Keefe 1998; Anderson 2008a).

In more recent times the 'market economy' approach has maintained that the state should assist the most dynamic sections of the economy, in particular the export sector, as these sectors can contribute most to growth of the formal economy, and so 'stimulate' (or create 'spin off' benefits for) other private investors. Successful private investment creates employment, the principal means by which benefits are said to 'trickle down' to wider sections of the community. Important implications are that infrastructure would be prioritised to such things as roads and ports that serve export plantations, and preferential (e.g. tax free) treatment for private investors, including foreign investors.

States which engage in wider social infrastructure development, public enterprise and provision of free services are moving outside the bounds of the economic liberal view of what used to be called 'sound economic policy' but is now often called 'good governance'. Such public institution building may compete with private investment, which is said to be "more efficient" (e.g. World Bank 1995).

The 'market economy' approach is promoted, but practised selectively, by the western powers. However it is important to note that this does not represent the means by which the wealthy countries themselves became wealthy. The idea represents more a preferred model of wealthy capitalist societies, which have already developed substantial public institutions and infrastructure, as well as achieving high levels of education and health. For example, the wealthiest country members of the OECD almost all (with the notable exception of the USA) have guaranteed, universal access to health care services. Nevertheless the OECD, through its emphases on private resource supplementation, private infrastructure development and market mechanisms, promotes semi-privatised health systems in developing countries, through its development cooperation policies (OECD 2003).

Development in Europe was backed by a substantial surplus from colonialism and slavery, absorbed into commerce and industry (Williams 1944). European, North American and Japanese capitalist development then grew their human resources and technology with state sponsorship and financial assistance, public-private collaborations and little competition (e.g. Ettlinger 1991). ‘Open markets’ suit, and are promoted by, those nations which have already achieved some degree of economic dominance.

The practice of launching consumption-based ‘stimulus packages’ at times of recession follows the macroeconomic model of highly developed formal economies. The idea is to stimulate existing developed industries and not to build new capacity, as is required in developing countries. Infrastructure-based ‘stimulus’ packages are somewhat different, and can have development benefits, if well focussed on community needs.

Despite being the constant demand of the powerful economies, ‘open market’ strategies have never led to the industrial development of any country. There have been some economic liberal attempts to prove the contrary (e.g. Rostow 1960) but their evidence is very poor. In many respects reactions to the failure of ‘open market’ models have led to the principal alternatives; that is, developmental state and ‘human development’ (or human resource-focussed) approaches.

For example, after the Second World War of the 20th Century, the US suggested that Japan pursue its ‘comparative advantage’ as a provider of cheap labour. This seems absurd today, with wages in Japan as high as anywhere on earth. The Japanese, building on their strength in human resources - in a war-devastated, resource poor and disempowered nation - preferred to upgrade their productive capacities, building a successful industrial economy within a relatively short space of time (Johnson 1982).

The principal challenges for a ‘market economy’ strategy are how to prevent: a collapse in basic services; the ‘leakages’ in investment and income generation; and widening inequality and social exclusion. Some formal sector industries may boom (e.g. natural resource extraction) but the benefits will be poorly distributed. Yet inequality does not concern economic liberals. They see it seen as another spur to market participation.

7.2 The ‘developmental state’

East Asian versions of the ‘developmental state’ represent the most prominent and successful examples of developing countries (and in some cases, former colonies) upgrading their productive capacities. We can see capitalist and socialist variants, looking at Japan, South Korea, Taiwan, Singapore and the Peoples’ Republic of China. In both the capitalist variant (where private investors dominate) and the socialist variant (where social investment dominates) strong political will is required, so that the state has a degree of ‘autonomy’ from the private investors.

A ‘developmental state’ implies that the state leads the process of development, whether by forming councils to coordinate the production and trade strategies of the large private companies (as in Japan), by developing longer-term plans beyond the agenda of existing industries (as in Singapore) or by building strong public enterprises (as in Venezuela). As this requires struggles with the ambitions of large private corporations, it has been said that an authoritarian state is required (e.g. Johnson 1987; Kim 1997). Indeed, authoritarianism was prominent in militarised

South Korea and civilian-led Singapore. However developmental states have been described in stronger democracies, such as contemporary Venezuela, and in small island nations, such as Mauritius (Meisenhelder 1997).

The World Bank's 'East Asian Miracle' report (World Bank 1993) gives some idea of the developmental state's challenge to the 'open market' model. It raised a huge controversy in the US, amongst economic liberal opponents of state 'intervention' in the economy. The report drew attention to the coordination required in industrial development, and the key economic role of East Asian states. However, as Stiglitz (2002: 91, 266) reminds us, this report was watered down due to resistance from the US, and only appeared at all because the Japanese government funded it.

Institutional ideas help explain the conventional success of the developmental state model, including in the USA. John Kenneth Galbraith saw the key features of North American capitalism as little to do with markets and more to do with the planned sector, where large corporations backed by states administer systems and prices (Galbraith 1967).

The idea of 'comparative advantage' was challenged by that of 'competitive advantage', where it was recognised that local advantages were created, and not static (e.g. Johnston 1989; Porter 1990). The technical-industrial centres of both Japan and California have been described as developing under longer term influences of joint ventures, a strong human resource base, linkages with other states, coordination, and "complementary strategies of import substitution and export promotion" (Ettlinger 1991).

In a similar way, the institutional idea of 'circular and cumulative causation', with its discussion of the development and decay of institutional linkages (see Toner 1999), has been used to explain industrial 'cluster development' in developing countries. In this way, the United Nations Commission on Trade and Development has discussed criteria for regional clusters, including technological development, innovation and trust, cooperation as well as competition, and the learning involved in industrial clusters. The most successful sub-regional example of this model is the engineering and IT cluster in Bangalore, India. This large industrial zone was built on strong central government investment in colleges and defence industries, as well as coordination with and between private firms (UNCTAD 1998).

Socialist versions of the developmental state can be seen in China, where state corporations retain majority shares in most major companies (Imai 2006) and Venezuela, where the large state oil conglomerate PDVSA has extended its influence beyond the energy sector into industry, transport and construction, as well as backing social programs (e.g. Weisbrot and Sandoval 2007; Bruce 2008).

Many of the examples of developmental states have been large, strong countries. However examples also include small island states, such as Singapore (Grice and Drakakis-Smith 1985) and Mauritius (Sandbrook 2005). In the latter case, the former French and British colony managed to escape dependency on plantation sugar and moved into a more diverse, capitalist model, with strong development of education and health. The process was said to require a "capable and relatively autonomous state bureaucracy" (Meisenhelder 1997: 288).

However the role of the state, of planned institutional development and the various linkages within a 'developmental state', don't provide the full picture. This process also depends on the substantial development of human resources, and in particular of creating a firm basis in education and health. Challenges for a 'developmental state' approach include: a clear vision, a well educated population and political will alongside popular support.

7.3 Human development

Focussing on education and health sits alongside the emphases on other human capabilities in what might now be called a 'human development' approach. To the extent that this can be called a distinct strategy of development, it requires emphases on core capabilities such as education, health, gender equality and participation. In development this should be seen as strong and sustained efforts to build not just human resources, but a healthy, well educated population. In this approach education and health are key goals of development, not just the means to create skills within an economic workforce.

It is notable that several resource-poor island states have done great things, mainly through building human resources. Japan, for example, became an industrial power despite being crushed by war, and despite the absence of energy resources. Singapore, a former colony with hardly any physical resources (it even has to import fresh water) is now a high income country. And Cuba, with few physical resources, has the best health indicators in the developing world and is the major provider of health aid programs to other developing countries. These three very different countries have one thing in common: they built a distinct future by investing in their own people.

A human development approach focuses on human outcomes such as those set out in the UNDP's human development reports and, more recently, in many parts of the Millennium Development Goals. A 'market economy' approach, by contrast, focuses on the 'open market' means of building general economic capacity. Yet a human development approach is not prescriptive of means. For example, socialist Cuba has achieved very high human development rankings (UNDP 2009), including some strategic foreign investment, but without an 'open door' policy to private investors.

While the 'human development' concept is relatively new, the approach is not. Sweden, for example, led the world in maternal care in the late 19th century, through its network of midwives. Though a fairly poor country at that time, its well organised and well distributed system of birth assistants gave it better maternal mortality outcomes than other European countries (Van Lerberghe and De Brouwere 2001). Sweden's early success in maternal health was not due to economic wealth. Indeed, research commissioned by the World Bank tells us that, across all developing countries, the education of women has a more powerful impact on critical health indicators (adult and child mortality, fertility rates) than higher incomes (Wang et al 1999). Yet 'market economy' approaches always stress higher incomes.

The focus on human capabilities and improved outcomes allows for a wider view of development. For example, it seems likely that customary or community land, in some countries, serves as a powerful basis for food security, employment and social security. Where land is widely distributed, as in the Melanesian countries (Papua New Guinea, the Solomon Islands, Vanuatu) it serves as a great 'hidden' reserve of wealth, nutrition and potential income. It also provides the

distribution mechanism for those benefits (Fingleton 2005; Anderson 2010). 'Market economies', by contrast, will always demand commercialisation of land (e.g. Gosarevski, Hughes and Windybank 2004). This will be followed by land rationalisation and greater reliance on cash economies, with all their distributional problems.

One of the most prominent examples of the benefits of a sustained focus on education has been the state of Kerala, in India. Even before independence Kerala had a higher than average rate of education. After independence the state maintained a strong emphasis on mass education, combined with land redistribution and other egalitarian policies. The result is that, while the average income of the state just about matches the Indian average, the human development outcomes are markedly better. Adult literacy is above 90% in Kerala, compared to the Indian average of 65%, and the gender disparity is far less. Infant mortality is 14, compared to a national average of 68; and the life expectancy of 73 years is much higher than India's average of 61 years (Kerala Government 2003).

A 'human development' emphasis faces challenges of effective coordination and mobilisation of its human resources. The focus remains on building human capacities for the future.

Table 7.1 Development Strategies

	Private Market Economy	**Developmental State**	**Human Development**
Ideas, strategies, emphases	Open markets, broad based growth, comparative advantage	State-led planning, 'competitive advantage', institution building	Participation, human capabilities, human resources
Sectoral implications (education, health, infrastructure, economy)	Minimal free services, 'safety net', export infrastructure, privatisation, 'enabling environment'	Coordination of human resources and industry, state investment, capitalist or socialist versions	Strong push in education and health, participation, equality
International experience	Western model (selectively applied), favoured by corporations	East Asia (Japan, South Korea, China, Singapore), Venezuela	Japan, Kerala, Cuba, Venezuela, Singapore
Challenges	Weak strategic plan, excludes the poor	Human resources, political will and popular support needed	Coordination, mobilisation of human resources

Some of the main ideas, implications and challenges of these three approaches are represented in Table 7.1. These three development strategies characterise distinct approaches; in practice, there are hybrids. Let's now turn to the approaches taken in independent Timor Leste.

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8. Strategies in Timor Leste

Post-independence development strategy in Timor Leste began with a National Development Plan (NDP), launched at Independence in May 2002. Since then we have seen the differing approaches of two main administrations: the Fretilin-led government of 2001-2006, and the AMP coalition of 2007-2010. Let's start with the NDP.

8.1 The National Development Plan, 2002

Timor Leste's *National Development Plan* (Planning Commission 2002) is a complex document, difficult to characterise, because the process of its development required that it contain a variety of influences. It is necessarily a hybrid.

In the first instance, the process of developing the Plan adds elements of a human development character: those of inclusiveness and participation. Economic liberal approaches would see economic policy more as a 'technical' matter, best left to the experts. As in any elitist process, programs are formulated 'from on high' and delivered. Yet in the formulation of Timor Leste's NDP, the then Chief Minister and Chair of the Planning Commission, Mari Alkatiri, pointed to:

> "the open, participatory and inclusive nature of our planning … over 120 government officials have worked tirelessly … they debated the issues and problems … involving the public … we invited representatives of the Church and members of Civil Society, national and international NGOs, the private sector and public interest groups … to help debate and formulate policy options, program priorities and implementation strategies for the National Development Plan" (p. xvii).

The then President-elect Xanana Gusmao agreed:

> "The process of preparing the Plan gave thousands of East Timorese from school children to elderly people, the opportunity to think about the kind of future they want for themselves and for future generations … to think broadly about our nation's development" (p. xvi).

This level of participation helps include a wide range of voices, adding both relevance and 'ownership' to the development process, thus enhancing human capabilities. For these reasons the NDP can be said to have some human development characteristics.

The human development emphasis is present, but more muted, in the rest of the document. There is some emphasis, in education and capacity building (skills development), on "reducing imbalances in education" and addressing urban-rural gaps (pp. 4, 9, 31). This emphasis on eliminating inequalities takes the NDP beyond the more limited 'market economy' commitments to publicly funded 'basic' education, usually followed by a push to privatise secondary and technical education.

There are other hints of a human development emphasis, through the Plan's commitment to ongoing participation in governance, to the "participation of all citizens in economic, social and political processes and activities" and to promoting "gender equality and the empowerment of women" (pp. 20-24). The NDP's commitment to the Millennium Development Goals maintains this same emphasis, as the first few MDGs are based on human development measures.

There is an emphasis on institution building in the NDP, as one might expect of a new nation that requires the basic institutions of a new state, law, policy and infrastructure. This in itself would

not reflect a 'developmental state' approach unless that institutional building were preparing a leading role for the state, especially in investment planning and resource management.

A 'market economy' approach would focus institution building on creating an 'enabling environment' of law and institutions for private economic activity. Indeed the NDP does this repeatedly (pp. 2, 20, 22, 24, 28, 29). It thus incorporates some of the 'market economy' approach into its institution building. However it goes a bit further than that. Despite the market economy language on institutions, the NDP is heterodox in maintaining a stronger role for state planning, state involvement in resource control and some hints of greater planning in agricultural development and rural development (pp. 10, 20, 31). These provide hints of a modest developmental state approach.

Despite the fact that the NDP is said to cover 18 years (2002-2020) Mari Alkatiri, in his forward, suggests the Plan relates mainly to "the next five years" (p. xvii). The Plan itself refers to an ongoing monitoring and evaluation process which includes "most importantly, improvement in the Plan in itself" (p. 5). So participation and state direction are to be maintained.

A market economy, or economic liberal, approach to resource management would leave it to the private companies, with the state simply collecting taxes and license fees. This is indeed the case in Australia, for example, where the state has no equity at all in natural resource or processing industries. The NDP, by contrast (building on Article 139 of the Constitution, which requires the state to own and fairly manage natural resources) calls for strong state management, and in particular for "sound administration and sustainable utilisation of the oil and gas revenues to benefit present and future generations" and to "curb the temptation to squander the windfall in ostentatious consumption" (pp. 24, 30). This contrasts with the strong tendency of 'market economy' approaches to 'discount the future' value of assets (whether for environmental costs or for future generations) and to emphasise current market transactions.

However the NDP has other strong economic liberal elements, to some extent due to outside influences. This Plan was created before independence, at a time when Timor Leste did not quite have its full sovereign voice, and when development banks and international donors had a stronger say. The language of economic liberal institutions (particularly the World Bank) is apparent, and has been incorporated into this sovereign document. The NDP repeatedly emphasises the themes of 'private sector' led development, with a diminishing economic role for the state. It is notable, though, that the 'private sector' of the NDP mixes the informal farming sector with private formal sector businesses, domestic or foreign.

The NDP suggests that "successful private sector development will be a key driver of economic growth and poverty reduction … the Government has committed itself to a market-based economy ... [including] an open approach to foreign investment and foreign trade" (p.11). It calls for "an open market system but with important strategic and regulatory roles for government" (p.6), saying that Timor Leste will develop:

> "A market economic system with strategic and regulatory roles for government including the provision of social safety nets … a strong role for the private sector in development … Government is shifting from driving the economy to create an enabling environment … and arranging for the delivery of essential support services for the private sector to gain confidence and strength … [government will]

> provide a growth enabling policy and legal environment … the size of the Government will be smaller than in previous years" (pp.22, 28-29)

There are many emphases on private investor led growth, including an openness to foreign investment (p.31). The "market based economy" approach is also applied to agricultural development, although here the private sector is said to include informal sector farmers (p.24).

An outside reader of the NDP might say that, in terms of economic development strategy, economic liberal influences are strong to dominant, but moderated by some developmental state influences in the areas of planning and natural resource management, and some human development emphases in terms of participation and a more equitable approach to education, women and rural development.

8.2 Fretilin-led heterodoxy, 2001-2006

The practice of the first post-independence government, a coalition led by Fretilin, built on the NDP but was, in practice, more heterodox. What follows is not an assessment of that government but rather some illustrations of its distinct themes in the fields of agriculture, fiscal autonomy, and education and health.

With very little money in the first budget and with the task of constructing the institutions of a new state – a parliament, criminal and civil law, a police service, a public service, language policy – there was much to address. Prime Minister Alkatiri stressed the need to construct democratic institutions but also to address key human development objectives such as nutrition, health and education. Poverty would be reduced by "rapid, integrated, equitable and sustainable economic growth", to help meet the people's basic needs. He noted the objective of creating an enabling environment for the private sector, but this included "farmers, fishers, investors, micro-enterprise … traders and others" (Alkatiri 2006: 37-39). The government would maintain a 'market economy' but with "a strategic and regulatory role" for government, which would in particular create "the networks and mean by which to guarantee social security during the most difficult times" (Alkatiri 2006: 45).

One of the first conflicts with international agencies came over agriculture, before independence. In 2000 a World Bank team had rejected proposals by the UN Transitional Administration (UNTAET) and East Timorese leaders that aid money be used for Agricultural Service Centres, a public abattoir and public grain silos. Nor did the agencies support the move to rehabilitate irrigated rice fields. This opposition was ideological economic liberalism: "such public sector involvement [in agricultural services] has not proved successful elsewhere" (World Bank 2000: 14); and "the government should not own revenue generating enterprises, such as meat slaughterhouses, warehouse facilities, grain storage facilities .. [this] would be costly and would inhibit private entrepreneurship" (IDA 2000: 3-4). Given that these proposals were linked to concerns arising from the country's prior food crises, these were acts of extraordinary insensitivity, and a denial of self-determination (see Anderson 2003: 176-177).

After independence, the government proceeded with its planned rehabilitation of rice fields, but without World Bank or Australian help. Australia, a major grain exporter, had made clear that its

assistance with food security would focus on export crops and agribusiness (DFAT 1996).[7] With some assistance from the FAO (for grain silos) and Japan (in rice production) Timor Leste maintained an independent course. By 2004 rice production (mostly irrigated fields) had increased strongly from the very low levels of 1998-99, though possibly at the expense of maize and cassava production (UNDP 2006; see Appendix Table A6).

In 2005 a food security policy was introduced which emphasised a fair degree of independence from 'market economy' orthodoxy in agriculture. This policy focuses on support for existing small scale farming, rather than (as advocated by the World Bank and the Asian Development Bank) a push into larger-scale cash cropping, aimed at export markets. The policy proposes a range of extension services (e.g. seeds, technologies, livestock services), support for farmers' organisations, rural credit, and marketing and infrastructure support for both local and export markets. It speaks of a land use policy, support for community organisations and cooperatives, and roads to provide "market access for isolated sucos". The food security policy goes beyond agriculture into early warning systems, grain storage and relief assistance, "preferably established and managed at community levels through Suco councils" (MAAF 2005b: 8-11). There was no talk of alienation of land to large agri-business investors. Nevertheless, a proposed biofuel industry, using contracted East Timorese Jatropha farmers, was initiated in mid 2005 (Bennet 2005).

Little of the proposed wide-ranging support to small farmers was achieved. This was in part because of the limited budgets, but also due to competing demands on those budgets. The commitment to agriculture in the 2004-05 combined sources budget was 8.8% (RDTL 2004; see Appendix Table A8), down on the 11% that had been promised in the Sector Investment Program (UNDP 2006: 38).

The first government maintained its resolve to pursue cautious and autonomous fiscal policy, carefully managing small budgets and, despite the lack of resources, avoiding debt. Conscious of the debt-based political leverage introduced in the 1980s and 1990s, which had been resisted strongly by many other developing countries, a public campaign backed this move for a 'debt free' future (ETAN 2002). So despite the virtual absence of oil and gas revenues in the first few years, the government took out no loans (IMF 2006: 33). Nor were there significant private takeovers of key services.

The government developed a series of Sector Investment Programs (SIPs), though these tended to be more comprehensive than focused. For example the private sector SIP committed itself to the support of "agri-business" and "private participation in infrastructure, including perhaps power and water supply" (Ministry of Development 2006: ix-x). However there were no large agri-business projects nor private investor moves into power or water. Water and electricity supply, though very limited, were kept in public hands (IMF 2007: 4). Telecommunications was handed to a foreign company, but on a build-operate-transfer (BOT) basis, where the government maintained some equity and future rights (Alkatiri 2006: 53).

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[7] Despite Australia's economic liberal approach to food security ('rely on trade not self-sufficiency') the country did offer support for a 'Seeds of Life' program, which was aimed at developing appropriate domestic seeds (including rice) for Timor Leste's conditions (AusAID 2010; see also Javier et al 2003).

This was not a 'market economy' approach, but rather a state-managed effort to retain strategic control and avoid leverage by foreign financiers. Nevertheless, those financiers were managed tactfully. Timor Leste joined the World Bank, but did not borrow its money. The Bank maintained an advisory role, as well as helping coordinate foreign assistance (IMF 2006: Annex pp.5-6). At a conference in 2005 the Prime Minister explained why his government had not engaged in the World Bank's 'Poverty Reduction Strategy Paper' (formerly Structural Adjustment Programs) process of conditional loans:

> "the PRSP with its concessional loans program increasingly places more burdens on developing nations because they are not based on real feasibility studies … we have adopted a policy of avoiding such debts because we recognise that our capacity to absorb these funds is still limited, as is our labour force productivity" (Alkatiri 2005)

The conflict over agriculture and food security provides one example of the leverage Alkatiri's government sought to avoid. The constant demand for foreign investor 'participation' in key services was another (e.g. IMF 2007: p.8).

In education and health the Fretilin-led government built on the country's constitutional commitment to education and health as rights, rather than commodities. In this sense, the 2001 constitution had established and the government maintained some 'human development' themes, opposed to the 'pay for service' ethos of market economies. The government began with strong commitments, pledging "more than 35% of resources" to education and health in its first budget (Alkatiri 2006: 48). However it delivered only 27% and 25% in the 2004-05 and 2005-06 budgets, respectively (Appendix Table A8).

There were some modest education and health achievements in those first years. Combined school enrolment rates rose from 59% in 1999 to 66% in 2004, and under five mortality (per 1,000) was said to have fallen from 159 in 1999 to 136 in 2004 (UNDP 2006). Lack of capacity and resources constrained educational development. Nevertheless, a school feeding program was introduced in some districts, again representing a strong human development theme. The first draft of the food security policy included reference to this program, backed by the UN's World Food Program, which would both "encourage school attendance and improve nutrition of school age children" (MAAF 2005a). For some reason this reference was dropped from the final food security policy (MAAF 2005b); but the school feeding program itself was maintained.

A significant human development move in health occurred in early 2003, when the country's leadership chose - against the opposition of the US and Australia - to take on a health cooperation program with Cuba. This 'south–south cooperation' program rapidly became the backbone of the country's primary health care and medical training, dwarfing all other health aid programs in the country, indeed in the region. By late 2005 there was an offer of 1,000 medical scholarships and by 2008 almost 900 of those places were filled. By 2006 there were almost 300 Cuban health workers in the country many of them in remote rural areas. A substantial literacy program, based on the Cuban method 'Yo Si Puedo' ('I Can Do It'), was introduced in 2005 (Anderson 2008b). These programs gave strong practical support to the constitutional commitment to health as a right, and represent a strong human development emphasis, contrasting with 'market economy' ideas on health sector development.

The Fretilin led government built on the *National Development Plan* and its Sector Investment Programs, both of which had some strong economic liberal language. Nevertheless, the

government pursued some key heterodox policies: in agriculture, finance, education and health. This was a strong human development approach, at odds with the ‘user pays’ and private-investor ‘participation’ ethos of ‘market economy’ programs.

As the stated economic strategy was wide ranging and had a fair degree of economic liberal language, it attracted support of the international agencies. But in 2006, when political crisis destabilised the government, the IMF pressed for stronger measures to support private sector led growth, including private investment in agriculture, fisheries and tourism. It warned of rising wages and, to contain this, urged “greater labour market flexibility” (IMF 2006). These ‘market economy’ ideas found greater resonance with the AMP coalition government elected in 2007.

8.3 The AMP and big money, 2007-2010

The AMP (Parliamentary Majority Alliance) coalition government, led by Xanana Gusmao, introduced some economic liberal emphases. Once again, what follows is not an attempt to assess the AMP government, but rather a characterisation of some important elements of its strategic approach, in the fields of fiscal policy, infrastructure, land, and education and health.

The AMP coalition had access to larger budgets, from petroleum revenues, and was also inclined to spend more freely. Between 2005-06 and 2008 the state budget almost tripled, from $120m to $348m; by 2010 it had risen to $660m (see Appendix Table A7). Despite rising revenues from the Petroleum Fund, in 2009 the government overdrew the nominal ‘sustainable’ amount (the ‘ESI’) by $104m, taking $512m instead of $408m (World Bank 2010a: 71). In that same year, further overspending of the Petroleum Fund, in the name of an ‘Economic Stabilisation Fund’ was blocked when the courts found it to be unconstitutional (RDTL 2009: 8). This sharply increased level of spending, justified by references to poverty reduction and a ‘stimulus’ to the economy (RDTL 2009), identifies the AMP government with a ‘big money’ approach most consistent with economic liberalism.

Some foreign advisers (e.g. Sachs 2010) and economic liberal agencies had urged this greater spending, especially on infrastructure and on improving the conditions for foreign investors. “Ramp up public spending” the IMF (2007: 2, 5) said. The aim was to “lift [economic] growth to a higher sustainable path” (IMF 2006: 10, 12, 21; IMF 2007: 2, 8). The emphasis here is on current spending, consistent with the ‘market economy’ approach to development, where ‘future value’ is discounted. Government spending can ‘stimulate’ waves of new income and consumption in an economy. It may be more useful if linked to the creation of valuable infrastructure, such as roads and schools; but might also be carried out in a wasteful manner.

The chief stated aim of Timor Leste’s 2010 budget was infrastructure:

> “the 2010 budget prioritizes investment in infrastructure. The future of our country depends upon the building of basic infrastructure. We need infrastructure to develop a modern and prosperous Timor Leste.” (Xanana Gusmao in RDTL 2009: 15)

Indeed there was a very strong commitment to infrastructure. Planned expenditure rose from $44.5m in 2008 to $229m in 2010, representing a jump from 15.8% to 28.5% of the state budget (see Appendix Tables A7 and A8). Much of this spending, on schools and roads, will be of lasting benefit. However the potential for waste and corruption is reinforced by the idea that a ‘stimulus’ for private businesses is as much a legitimate policy aim as is the infrastructure development.

If we look at the August 2009 ‘Referendum Package’ – about $70m of mostly infrastructure projects – the pattern was for sub-contracted projects, where private companies make money for themselves while constructing public facilities. Dozens of projects were allocated outside normal government procedure, mostly to private companies, and attracting many complaints of waste and corruption (Tempo Semanal 2010). The Secretary of State for Public Works, Domingos Caero, rapidly acknowledged that that “about 60 per cent of the Referendum Package Projects are of bad quality”, and said he was taking steps to penalise the companies involved (Fretilin 2010). However it seems likely that a similar pattern of sub-contracting and waste will be employed in the 2010-2011 infrastructure budget, destined for roads, bridges, power and other facilities (RDTL 2009: 15, 29).

The concept of a ‘stimulus’ was developed in wealthy countries with strong formal sectors. The idea (e.g. Keynes 1936) was that weak consumer demand in a previously active formal economy, could be ‘re-activated’ by new spending. However this was not a developmental concept, aimed at building new capacity. Indeed, such ‘demand management’ was unable to address the structural changes of the 1970s in the wealthy countries. Some particular problems with such ‘stimulus’ spending in less developed economies are:

- The money can be ‘captured’ by elites in the cities and formal sector, leaving little to no ‘trickle down’ to those in the rural informal sector;
- There can be large ‘leakages’ to offshore accounts and wealthy consumption spending, which weakens any ‘spin offs’ or ‘trickle down’ to other sectors;
- If this ‘stimulus’ is carried out through private contracts, the lack of coordination may undermine new capacity and the creation of new economies

An important strategic question is: what emphasis is given to infrastructure development? If the ‘market economy’ emphasis is to support new and large formal sector investment, roads and other facilities will be directed accordingly. On the other hand, if there were a greater ‘human development’ emphasis, this infrastructure would weigh more on the side of education, health facilities, and roads that link up remote rural communities with markets and services. As budgets address all these needs to some extent, it is a question of emphasis. However the ‘market economy’ approach favours large formal sector activities over informal and rural sector support, as the former involve powerful interests and have the greatest immediate impact on economic growth. Sub-contracted, or privatised, infrastructure projects may undermine coordination and foster duplication. A developmental state emphasis would keep greater control and coordination of infrastructure development.

An unusual feature of fiscal policy in 2008 was the decision to cut a range of taxes, and in particular service taxes, income tax and tariffs. This was a unilateral, economic liberal move; welcomed but not really called for by the international agencies. In 2007 the IMF had discussed possible ‘tax reform’ in Timor Leste, generally favouring tax reductions but admitting there was no strong evidence to indicate benefits. Indeed the IMF recognised that cuts to the non-oil tax system would “remove a useful discretionary fiscal policy instrument” and that retaining “some level of non-oil tax revenue would be prudent” (IMF 2007: 19-24). Nevertheless, President Ramos Horta called for the country to be “almost tax free”, in a bit to attract foreign investment (ABC 2008). A law along these lines passed parliament in mid 2008 and was subsequently

praised by the World Bank (2010b: 12). The immediate impact was to narrow, even further, the 'tax base' of the country, making the state even more dependent on the Petroleum Fund.

There do not appear to be investment dividends from this move. Political stability and improvements in infrastructure and public health will do more to attract investment in, say, the tourism sector. Tax levels may not be particularly relevant to investment decisions, except in highly competitive environments; companies simply want to make money. They will factor in tax rates as a normal cost of business. For example, Cuba experienced a tourism boom in the late 1990s, despite fairly high levels of tax. But the country was opening up a new 'market' in the Caribbean, and offered a safe and naturally beautiful environment, with good infrastructure and an excellent public health system.

In agriculture, the major initiatives of 2008 were proposed biofuel projects. One of these extended the earlier proposal for sub-contracted Jatropha farming, near Baucau (RDTL-EDA 2008). The other involved a proposed lease to a foreign company of 100,000 hectares, almost 20% of the country's arable land (MAP-GTLeste Biotech 2008). It was argued that a sugarcane plantation on this land would create jobs. Fretilin spokesperson Estanislau da Silva (a former Agriculture Minister) strongly criticised the large lease proposal:

> "They say they are going to plant sugarcane … [this] goes against what we are doing in terms of development and increasing food production and food [self]reliance … Two thousand jobs means nothing to me when you give away 100,000 hectares" (AFP 2008).

This was indeed a shift away from a more autonomous agricultural and food security policy - relying on domestic crops as the core of food security - towards a more 'market economy' approach, which emphasises formal sector industry and food security through incomes. Yet the dangerous volatility of rice markets from 2006 onwards should have warned against such an approach. The government sale of subsidised rice imports is said to have created hoarding, speculative markets and corruption, as well as damaging local production (Kammen and Hayati 2007; Holland 2009). It is an unstable 'solution'.

The AMP government's commitment to education and health sounds good but has not been matched in practice. The Prime Minister's 2010 'Strategic Development Plan' presents the admirable goal of "school construction and teacher training to ensure universal secondary school completion through Grade 12 by the year 2020" (OPM 2010: 14). This would be an achievement above that of most wealthy countries, and is possible; but those developing countries that have made strong advances in education have only done so after many years of strong and consistent investment.

In contrast, the proportion of both Timor Leste's state budget and total budget ('combined sources' i.e. state plus donors) dedicated to education has fallen steadily since 2004-05. The 2010 state budget only dedicates 10.2% to education, down from 15% five years earlier (Appendix Tables A7 and A8). Although the budgets have been larger and the absolute dollar amount on education and health has been rising, moneys have been directed to other sectors and the relative spending on education and health has fallen. In UNDP terms this represents a lower 'commitment' to education and health. A stronger 'human development' approach would have invested heavily in education and health.

The ‘Strategic Development Plan’ (SDP) itself presents as a successor to the National Development Plan of 2002. It is an ambitious and optimistic document, suggesting Timor Leste is set for huge increases in per capita incomes, that petroleum revenues will “provide substantial revenues for decades” and that the big spending approach – including “withdrawing in excess of the ESI” and additional borrowing - is desirable and necessary (OPM 2010: 4, 22). The SDP has some strong human development language and – in contrast to AMP government practice - is less strong on economic liberal ideas. Nevertheless, it does see private investment as the key element in the petroleum sector, telecommunications and agriculture (OPM 2010: 16-18).
This document does not have the legitimacy of the earlier NDP, being basically a missive from the Prime Minister’s office. After it was published Prime Minister Gusmao sought ‘dialogue’ (OPM 2010: 24). It seems unlikely that this Plan will survive the next change of government.

The International Financial Institutions (the IMF, the World Bank, the Asian Development Bank) seems to have been influential on AMP government policy and practice. The IMF takes its typical narrow view of development in Timor Leste - all depends on economic growth. It repeats this theme: “to promote human development and reduce poverty, the growth rate of Timor Leste’s economy will need to accelerate markedly” (IMF 2007: 12). The AMP government’s practical approach has been broadly consistent with this theme. That means enhanced current spending and less emphasis on the factors that do not show up so quickly in growth terms: a strong informal, rural sector and stronger development of human capabilities through participation, education and health.

Both the Fretilin-led and the AMP governments have demonstrated strong national will in the struggle with the Australian government and with the Australia-based mining companies over petroleum revenues. There have been drawn out disputes over maritime boundaries, royalty shares and a gas refinery location. This political will shows the capacity to support development plans, but the impact of this is undermined, more recently, by reversion to ‘market economy’ practice.

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9. Strategy, debate and the neglected sectors

There are some important questions that arise from consideration of development strategy and its application in Timor Leste: which strategy? why debate it? and what about the neglected sectors?

Revision of the National Development Plan, and application of the country's chosen path, can take any form and any language. That is the prerogative of national sovereignty. Nevertheless, there are lessons from consideration of broader themes and from the international experience.

It seems likely that Timor Leste will maintain some form of hybrid strategy, drawing lessons from elsewhere as well as from its own experience. For example, the Timorese experience with food insecurity must be expected to reasonably inform the country's approach to food security policy, and to agricultural development.

However recognition of the elements of this hybrid will be important, because of the implications for sectoral development. For example, a strong 'market economy' approach would mean that state spending on infrastructure favours providing a supportive business environment for private companies. We would see more roads, ports and facilities for export industries. We would also see state contracts offered to private companies to build the facilities to assist private companies. This would, in many ways, parallel what happens with much of the wealthy countries' aid programs.

On the other hand, a strong 'human development' approach would see, in infrastructure, more roads and facilities for communities, schools and rural markets. As the priority here is on building human capacity with limited resources, investment would have to be efficient and coordinated. State agencies (such as the Ministries of Education and Health) would be directly involved in the infrastructure development. It is less likely that there would be a 'secondary' aim of 'stimulating' private companies, because focus would remain on human capacity building.

There are good reasons why the process of deciding, and revising, development strategy should be participatory and involve public debate. Attempts to impose 'expert' solutions on an uninformed or uninvolved public are bound to meet with trouble, especially from a rebellious people who have rejected domination. People will not 'own' and support a longer term project with which they do not identify. If there is not wide participation in its creation, 'strategy' will be reinvented by each new administration, like new fashions. However, in that case, the lack of follow through on key policies would weaken plans to build key sectors, such as agriculture, education and health.

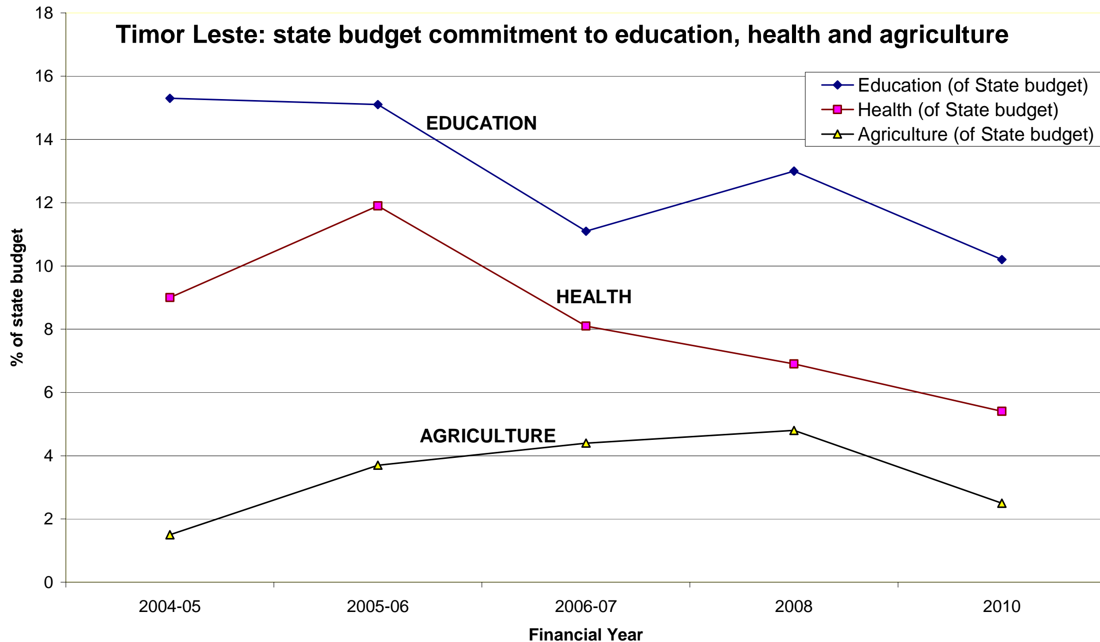
In a population with many young people, participation must mean the creation of forums and institutions for students and others to regularly debate development strategy. There can be no 'once and for all' discussion, because this will always exclude the younger generation. Nevertheless, well articulated values can be passed on between generations.

Yet even to participate in such debates, the population must be well fed, literate, secure, well educated and healthy. Timor Leste now has a measure of security. However development of the

key sectors of agriculture, education and health remains fragile. There are gaps between rhetoric and commitment.

Let's look first at agriculture. With most of the population dependent on informal sector farming – and with the whole population affected by failures in staple food production – every government has stressed the importance of support for rural farming communities. Yet no government has matched this concern with substantial investment. This sector which engages and employs as much as 80% of the population has never received more than 5% of the state budget (Appendix table A8). Small farmers have been mostly left to their own devices. Graph 9.1 below shows declines in education and health, as a proportion of the state budget, and the weak commitment to agriculture.

Graph 9.1: The neglected sectors: education, health and agriculture



Why is small farming so undervalued? For one thing, it is not counted well by the economists, nor by those who rely on 'market economy' information. Subsistence production and a great deal of informal work and exchange is simply not added to the national accounts. Even the UNDP - generally more heterodox in economic matters – adopts this misleading approach. For example, in the 2006 Human Development Report for Timor Leste "tackling rural poverty" the country is said to need "sustained economic growth". It is then is said that:

> "Growth will have to start with agriculture, which employs around three-quarters of the labour force. Most farmers are engaged in subsistence cultivation … average landholdings are around 1.2 hectares. Currently productivity is low: output per worker is less than one-tenth of that in industry and services and, as a result, agriculture generates only one-fifth of GDP" (UNDP 2006: 3).

This is a basic mis-reading of the agricultural sector. The confusion comes from conflating a large informal sector with formal sector macro-aggregates. To put it another way, they have not

included proper estimates of subsistence and informal sector production. It seems more likely that agriculture amounts to 60% or more of national production.

Studies in Melanesia show that rural subsistence sectors are seriously under-estimated (Gibson 2000). In Papua New Guinea, which has a similar proportion of its population in the rural farming sector, it has been estimated that subsistence production can be more than four times that of cash crop production. This means that while a family may only have a cash income of 3,000 Kina per year, their total production may be 13,000 Kina per year (Anderson 2010: 17). If this large subsistence production (including food but also housing) is not included in national accounts, the contribution of small farmers is not properly valued.

Under-stating the economic value of small farming contributes to the logic of governments pushing small farmers from their lands, in favour of large export crop plantations. This is precisely what happened with the oil palm developments in Indonesia, after the Asian Financial Crisis. The big plantations may increase GDP, but the displacement impact on small farming could easily lower total production, as well as dislocating large communities. Poverty could very well increase.

The alternative is to more decisively support rural communities, help them do better in their current farming and expand their domestic market opportunities, while backing up these communities with essential services. Better estimates of subsistence production can strengthen government commitments to deliver on their promises of extension services, local market facilities, storage and local roads. Export markets can come second.

Closely related to support for small farming is the recognition of customary land rights, and resisting the temptation to give over alienated or 'unused' land to large export crop plantations. Timor Leste's 2001 constitution, at section 54.4, specifies that only Timor Leste 'natural persons' can own land – that is, neither corporations nor foreigners. There was good reason for this. Community and family control of land for small farming provides the basis for livelihoods, food security, social security and environmental protection. Export capacity would better build on this basis, rather than displace it. The multiple benefits of small farming have only recently been more widely recognised (e.g. Mazoyer 2001). Large plantations, on the other hand, bring the particular dangers of dispossession, displacement, environmentally damaging monocultures and food insecurity. The experience of Haiti (Georges 2004) is one the best recent examples of this.

The strong decline in commitment to health – from 12% in 2005-06 to less than 6% in 2010, is alarming, given the health needs of the country. The Ministry of Health's 'Mid Term Expenditure Framework' developed in 2007 expected 12% of the state budget (Araujo 2010); clearly there has been a retreat from this position. Governments may have become complacent over their commitment to health, with reliance on the huge Cuban health program. While there have been some investments in health, these will have to be scaled up substantially, to make good use of the hundreds of medical students returning from Cuba. Failure to do so will risk losing many of these highly trained young people to emigration or other careers. The big surge in trained doctors, expected over 2010-2013, is a rare opportunity that needs careful management, and significant investment.

The steady decline in the budget commitment to education is also alarming, given Timor Leste's rapidly growing and very young population. Despite expanding budgets overall, and despite Prime Minister Gusmao's commendable goal of universal secondary school enrolment by 2020 (OPM 2010: 14), the relative commitment to the education sector has fallen from 15% to 10% of the state budget. This is inadequate for the stated goal.

All the successful development stories of island states with limited resources involve strong commitments to education and training. Japan and Singapore would not have industrialised as they did, and Cuba would not have become the world leader in health aid, without investing heavily in people. None of these countries relied on natural resources, they invested in their own people and built their own futures.

Although Timor Leste's relative performance in education is better than its per capita income,[8] its commitment to education is weak and compares poorly to other countries. The country's illiteracy deficit remains more heavily on women than men.[9] Developing countries on average commit 14% - 15% of their government's budgets to education. Those that want rapid progress in human development must do much better than this. Twenty-two (22) developing countries dedicate more than 20% of their government budgets to education, and a couple more than 30% (UNDP 2008: Table 11). Against its low education commitment, Timor Leste has the fourth highest rate of natural population growth on earth, at 3.1% per year (UNDP 2009: Table L). This should call for a greater commitment to education, not a lesser one. Meeting the universal secondary schooling goal of the 2010 'Strategic Development Plan', in the next decade, would likely require something closer to 30% of the total budget for education.

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[8] We have to look 30 places up the HDI rankings to South Africa to find another country that has a similar (above 70%) combined gross enrolment rate (UNDP 2008: 231).

[9] In 2004 only 43.9% of adult females in Timor Leste were literate, compared to 56.3% adult males (UNDP 2006: 15).

10. Summary

Section 1 Founding principles
Fund management is based on principles established by the *Petroleum Fund Law* 2005, in turn based on Article 139 of Timor Leste's Constitution. These principles require that the nation's natural resources be used "in a fair and equitable manner" and for the needs of "both current and future generations". Operational mechanisms established by law set up a governance structure for the Fund, a regulated investment regime for its financial assets and a process for withdrawal of revenues.

Section 2 Current Challenges
Current challenges for the Fund include the low return environment of a global recession, and a restructuring global economy in which the US economy and the US dollar are becoming weaker. There is also a 'honeypot' effect on the Fund, as it grows bigger. That is, the Fund is attracting more interest, and provoking arguments that its funds should be made available and used up more rapidly.

Section 3 Particular Risk Factors for Timor Leste
Some particular risk factors for the Fund include the state's recent extreme dependence on fund revenues. The Fund will provide 58% of total (and more than 90% of local) revenues for the 2010 budget. Another particular risk factor is the limited capacity of local financial managers, in the face of bolder but less accountable external managers.

Section 4 Sovereign Wealth Funds and Development
Sovereign wealth funds (SWFs) have the capacity to assist development through mobilising the savings of a nation in international reserves, strategic investment in human resources and infrastructure and generating participation in development through transparent processes.

There is a general trend towards diversification of assets in SWFs, although even wealthy countries take a cautious approach to risk. Despite some similarities, SWFs vary in: financial scale; levels of dependence on fund income streams; management expertise; and aims and objectives. Those countries which have less reliance on their SWF for budget finance can better afford to invest directly in local infrastructure, and focus less on financial returns. Those countries with high levels of skilled personnel can better manage exposure to risk in volatile financial and equity markets.

In the case of Timor Leste's Fund, it is relatively small, has limited levels of financial expertise and state finances have rapidly developed extreme dependence on Fund revenue. Fund investment strategy, taking note of these particular features, has reason to remain cautious.

Section 5 Fund Investment Reform Options
This paper reviewed several key elements that might be developed in a Fund investment portfolio. There are several hybrid investment options for consideration.

1. The status quo
No change to the Fund's investment regime would mean maintaining a priority on asset protection and prudent control. There is still room to make use of the more flexible 10% portion for other investment options. However as returns are likely to remain low, in this case consideration should be given to lowering the nominal 'ESI' (alternatively, lowering the amount drawn on for government revenue) to 2%.

2. Diversified bonds
A move into diversified bonds would retain most of the prudential (i.e. conservative) approach of the current regime, while allowing investment (up to 90%) in bonds in currencies other than US dollars. An actual 3% real return is attainable, as the figures in 5.2 demonstrate. In addition, there is room within the remaining 10% for more diverse assets. Amendments to Articles 14 and 15 of the Act would be required.

3. Diversified bonds plus
A 'diversified bonds plus' approach would combine the above option with cautious expansion of direct investment and equities options, while slowly building domestic financial management capacity. The current 10% 'ceiling' on non-bond investment might be maintained, or it could be lifted to 20%. Real returns of 3-4% are attainable. Amendments to Articles 14 and 15 of the Act would be required.

4. Strong move into Equities
A strong move into a foreign based stock market portfolio suggests a rapid move from the current 0% to (say) 25% or 40% in equities investment. The Fund would retain (say) 75% or 60% in bond investment. Securities investments might be added. This is the highest risk option and, as the move implies reliance on one or more external fund managers, an additional risk in lessened accountability. Returns could be 4% (or more, if combined with a diversified bond portfolio) but there is also the real possibility of losses. Amendments to Articles 14 and 15 of the Act (and Article 20, if securities are to be pursued) would be required.

Section 6 Institutional Implications
All reform options require amendments to Articles 14 and 15 of the Act. Any move into securities would also require changing Article 20, which currently prohibits any 'encumbrance' being placed on the Fund's assets.

This report, while supporting the concept of a benchmark 'ESI' as established in Schedule 1 to the Act, suggests changing the scheduled 'ESI's name to 'Nominal Sustainable Income' (NSI), so that the public does not confuse (i) what is actually estimated as sustainable with (ii) the benchmark.

If investment is to be made through a wider range of currencies, the discount rate ('i' of Schedule 1) should also be revised, perhaps on a trade weighted basis. Building the capacity of the BPA team would best parallel the gradual expansion of investment options. This report suggests that 'diversification' of investment instruments not be confused with 'diversification' of managers. The former is prudent, the latter could increase waste and undermine accountability.

Section 7 Development Strategies

The dominant 'strategy' for development - that of a 'market economy' which privileges private investors, 'open markets' and export sectors – has not led to the development of any country. Yet it is the preferred model by the established, wealthy countries. The market economy approach has particular implications for agriculture, education, health and infrastructure which differ from the emphases under 'developmental state' and 'human development' strategies. A 'developmental state' approach, used in East Asia, stresses the necessary coordination between the state and public and private companies, to improve (rather than just rely on) a country's 'comparative advantage'. The 'human development' approach places great emphasis on large scale education, participation and health. Many countries use hybrids of these approaches, but each has different implications for the means and ends of sectoral development.

Section 8 Strategies in Timor Leste

We can see distinct elements of development strategy in Timor Leste's National Development Plan (NDP), in the approach of the Fretilin-led government of 2001-2006 and in the practice of the AMP government of 2007-2010. The NDP has strong economic liberal elements, but is moderated by some developmental state influences in planning and natural resource management, and some human development emphases in participation and a more equitable approach to education, women and rural development.

The Fretilin led government used some strong economic liberal language but pursued heterodox policies, such as an independent agricultural policy, a cautious and autonomous fiscal policy, while developing education, health and school feeding programs as 'rights-based' free services. This was a human development approach, at odds with the ethos of 'market economy' programs.

The AMP coalition had access to larger budgets and spent money more freely, in line with 'market economy' ideas. A 'Strategic Development Plan' presented in 2010 had some more heterodox ideas, such as ambitious educational goals, but AMP practice remains orthodox. The proportion of Timor Leste's state budget dedicated to both education and health has fallen steadily. Leasing large tracts of land to agri-business companies and radical tax cuts are further signs of economic liberal practice.

Both governments have demonstrated strong national will over petroleum development. This shows the capacity to support development plans, but that capacity is undermined by reliance on 'market economy' ideas.

Section 9 Strategy, debate and the neglected sectors

Wide ranging debates on development strategy in Timor Leste are important. It seems useful to consider a centre, perhaps at the National University, to promote wider discussion and debate amongst young Timorese on development finance and development strategy. Recent declining budget commitments to agriculture, education and health deserve special attention.

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Appendices (A1 to A8)

Table A1: US Government securities, 1962-2009

	US 1yr rates	US 3 yr rates	Eurodollar 6month rates
1962	3.1	3.47	
1963	3.36	3.67	
1964	3.85	4.03	
1965	4.15	4.22	
1966	5.2	5.23	
1967	4.88	5.03	
1968	5.69	5.68	
1969	7.12	7.02	
1970	6.9	7.29	
1971	4.89	5.66	6.84
1972	4.95	5.72	5.86
1973	7.32	6.96	9.19
1974	8.2	7.84	11.07
1975	6.78	7.5	7.75
1976	5.88	6.77	6.12
1977	6.08	6.68	6.35
1978	8.34	8.29	9.14
1979	10.65	9.7	12.03
1980	12	11.51	13.84
1981	14.8	14.46	16.64
1982	12.27	12.93	13.41
1983	9.58	10.45	9.78
1984	10.91	11.92	11.1
1985	8.42	9.64	8.52
1986	6.45	7.06	6.69
1987	6.77	7.68	7.2
1988	7.65	8.26	8.01
1989	8.53	8.55	9.14
1990	7.89	8.26	8.2
1991	5.86	6.82	5.95
1992	3.89	5.3	3.8
1993	3.43	4.44	3.3
1994	5.32	6.27	4.95
1995	5.94	6.25	5.99
1996	5.52	5.99	5.46
1997	5.63	6.1	5.72
1998	5.05	5.14	5.42
1999	5.08	5.49	5.44
2000	6.11	6.22	6.58
2001	3.49	4.09	3.65
2002	2	3.1	1.81
2003	1.24	2.1	1.16

2004	1.89	2.78	1.72
2005	3.62	3.93	3.71
2006	4.94	4.77	5.27
2007	4.53	4.35	5.27
2008	1.83	2.24	3.48
2009	0.47	1.43	1.51
Average 1962-2009	**6.009375**	**6.422708**	**6.847949**

Source: US Federal Reserve 2010 (current rates)

Table A2: Australian and US bond rates, 1970-2010

	Aust 90 day bank bills	Aust 10 year T-Bond	Aust 5 year T-Bond	US 1 year T-bonds
1970	6.3	5.96		6.9
1971	7.6	6.85		4.89
1972	5.5	5.84	5.46	4.95
1973	4.8	5.76	5.31	7.32
1974	9.5	8.36	8.25	8.2
1975	9	9.5	9	6.78
1976	8.35	10	9.39	5.88
1977	9.6	10.4	10.21	6.08
1978	9.65	9.2	9.09	8.34
1979	8.75	9	8.99	10.65
1980	10.1	10.55	10.9	12
1981	13.9	13.1	13.1	14.8
1982	17.15	15.1	15.1	12.27
1983	14.8	13.6	13.4	9.58
1984	12.7	14	13.15	10.91
1985	14.6	13.7	13.4	8.42
1986	18.05	13.7	13.9	6.45
1987	16.6	14	14.55	6.77
1988	10.85	12.3	11.9	7.65
1989	16.9	13.65	14.35	8.53
1990	16.25	13.3	13.8	7.89
1991	11.65	11.53	11.32	5.86
1992	7.5	10.04	9.42	3.89
1993	5.82	7.98	7.26	3.43
1994	4.8	7.05	6.72	5.32
1995	8.08	9.85	9.96	5.94
1996	7.47	8.59	7.89	5.52
1997	5.91	7.68	7.03	5.63
1998	4.97	5.98	5.53	5.05
1999	4.77	5.55	5.06	5.08
2000	5.8	6.65	6.9	6.11
2001	5.59	5.23	5.05	3.49
2002	4.31	5.95	5.63	2
2003	4.74	5.13	4.74	1.24
2004	5.63	5.55	5.56	1.89

2005	5.77	5.57	5.41	3.62
2006	5.61	5.29	5.24	4.94
2007	6.34	5.69	5.97	4.53
2008	7.96	6.21	6.5	1.83
2009	3.14	4.4	3.59	0.47
2010	4.14	5.43	5.12	
Average rates, 1970-2010	**8.803659**	**8.859024**	**8.798718**	**6.2775**

Source: Reserve Bank of Australia 2010 (current rates)

Table A3: Eurozone debt security rates, 1994-2009

	Germany	France	Italy	Portugal
1994	6.07	5.94	8.77	8.58
1995	7.42	8.01	12.39	11.7
1996	6.2	6.59	10.52	9.45
1997	5.55	5.46	7.36	6.66
1998	4.99	5.03	5.38	5.32
1999	3.85	3.93	4.05	4.02
2000	5.51	5.62	5.73	5.78
2001	4.78	4.93	5.18	5.14
2002	4.92	4.99	5.2	5.15
2003	3.95	4.01	4.16	4.04
2004	4.11	4.14	4.34	4.19
2005	3.54	3.6	3.68	3.55
2006	3.47	3.51	3.7	3.6
2007	4.05	4.1	4.28	4.19
2008	3.95	4.08	4.35	4.27
2009	3.13	3.68	4.54	4.52
2010	3.17	3.5	4.05	4.56
Average rates, 1994-2009	**4.627059**	**4.771765**	**5.745882**	**5.571765**

Source: ECB 2010 (current rates at February of each year)

Table A4: Rates of Return on Major Sharemarkets, 1900-2009

	Average Real Rate of Return
Italy	2.07
Belgium	2.53
Germany	2.98
France	3.07
Spain	3.77
Ireland	3.8
Japan	3.84
Norway	4.14
Switzerland	4.25
Denmark	4.9

Netherlands	4.94
Finland	5.15
UK	5.28
Canada	5.77
US	5.88
Sweden	6.17
South Africa	7.21
Australia	7.5

Source: Fidelity International 2010 (average real rates of return)

Table A5: Select Human Development Indicators, Timor Leste

	1993	1996/97	1999	2001	2004	2007
Life expectancy at birth	52.2	54.4	56	56.7	55.5	60.7
Life expectancy (female)		55.5	57.7	59.2	60.1	
Adult literacy (% 15+)	35.6	40.6	40.4	43	50.1	
Underweight children <5		51	45	45	43	46
Under five mortality rate		184	159	144	136	
Under five mortality rate (female)		172	147	132	102	
Combined enrolment ratio (total %)			59.1	56.1	66	72
Combined enrolment ratio (female %)			57.9	60.3	63.6	
Combined enrolment ratio (male %)			62.1	50.1	68.3	

Sources: UNDP 2006: 10, 14, 80, 81, 87; UNDP 2008: 231; UNDP 2009: 173,

Table A6: Crop Production, Timor Leste (metric tonnes)

	1996	1998	2001	2004	
Maize	106,616	58,931	69,000	70,175	
Rice, paddy	52,607	36,848	53,845	65,433	
Roots and tubers	44,000	38,000	40,000	43,000	
Cassava	53,781	32,092	55,845	41,525	
Sweet potatoes	15,681	11,989	24,705	26,000	
Total four major staples	272,685	177,860	243,395	246,133	

Source: UNDP 2006: 84

Table A7: Public Spending in Key Sectors, Timor Leste, US$m

	2004-05	2005-06	2006-07	2008	2010
Combined sources budget	203.65	291.62	598.6	502.47	858.87
State budget	107.81	120.43	315.9	347.75	659.99
Education (CS budget)	30.38	39.07	63.8	58.58	96.97
Education (State budget)	16.48	18.22	35	45.28	67.48
Health (CS budget)	24.84	33.03	55.2	41.17	59.59
Health (State budget)	9.73	14.31	25.7	23.98	35.69
Agriculture (CS budget)	17.91	13.27	34.7	29.90	31.90
Agriculture (State budget)	1.57	4.45	14	16.67	16.39
Infrastructure (CS budget)	n.a.	n.a.	52.9	66.54	228.96
Infrastructure (State budget)	n.a.	n.a.	50.0	44.54	188.34

Sources:	(5)	(4)	(3)	(2)	(1)
Sources: (1) RDTL 2009 Table 7.3, p.66; (2) RDTL 2007, Table 8.5, p.59; (3) RDTL 2006, Table 6.5, p.27 (4) RDTL 2005 (5) RDTL 2004 Table 8.1, p.44; Notes: (a) The Ministry of Education was 'Education and Culture' in 2008 and earlier; (b) The Ministry of Infrastructure was 'Public Works' in 2006-07 and prior to that was merged with transport and communications. (c) Prior to 2005 the state budget was divided in CFET and TFET accounts. (d) Autonomous agencies are included in combined sources budget total, but not in the state budget.					

Table A8: Public Spending in Key Sectors, Timor Leste, % of total

	2004-05	2005-06	2006-07	2008	2010
Combined sources budget	100	100	100	100	100
State budget	100	100	100	100	100
Education (of CS budget)	14.9	13.4	10.7	11.7	11.3
Education (of State budget)	15.3	15.1	11.1	13.0	10.2
Health (of CS budget)	12.2	11.3	9.2	8.2	6.9
Health (of State budget)	9.0	11.9	8.1	6.9	5.4
Agriculture (of CS budget)	8.8	4.6	5.8	5.9	3.7
Agriculture (of State budget)	1.5	3.7	4.4	4.8	2.5
Infrastructure (of CS budget)	n.a.	n.a.	8.8	13.2	26.6
Infrastructure (of State budget)	n.a.	n.a.	15.8	12.8	28.5