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The oil resources of Timor-Leste: curse or blessing?

Mats Lundahl and Fredrik Sjöholm

Abstract Timor-Leste is among the youngest nations in the world. It began its independence under difficult circumstances: poverty is widespread, education is poor, the industrial sector is non-existent, and political turbulence is on the rise. On the positive side, future oil revenues are predicted to be substantial, which could potentially be a great help in Timor-Leste's struggle for development. This paper examines critically the possibility for Timor-Leste to use oil revenues to achieve economic development. It describes how difficult it is to estimate the future revenues because of volatile prices, territorial disputes, and insufficient seismological mapping. It continues with a discussion of the 'resource curse' – the difficulty of combining natural resources with economic development. Moreover, the particular challenges for Timor-Leste's development are dealt with at some length, as are possible ways to avoid the resource curse.

Keywords Timor-Leste; oil; resource curse; economic development.

Introduction

When Timor-Leste emerged as a sovereign nation in 2002 it was characterized by widespread poverty. The country was one of the poorest both in the East Asian region and in the world (Hill and Saldanha 2001; Lundahl

Mats Lundahl is Professor of Development Economics in the Department of Economics at the Stockholm School of Economics. His research focuses on a broad range of development issues including poverty, rural development and international trade policy.

Address: Department of Economics, Stockholm School of Economics, PO Box 6501, SE-113 83 Stockholm, Sweden. E-mail: mats.lundahl@hhs.se

Fredrik Sjöholm is Program Director at the Research Institute of Industrial Economics in Stockholm and Professor of International Economics at Örebro University. His research covers a broad range of issues in international economics and development studies, often with a focus on East Asia.

Address: Research Institute of Industrial Economics, PO Box 55665, SE-102 15 Stockholm, Sweden. E-mail: Fredrik.sjoholm@ifn.se

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and Sjöholm 2005). During the first few years of independence huge efforts were made to put institutions in place with the help of foreign assistance and to launch various programmes aimed at poverty reduction. The challenges are considerable and new problems are emerging. An unparalleled and increasing birth rate makes for a population growth so high that it will put considerable strain both on job creation and on the delivery of public services (Lundahl and Sjöholm 2006). A very low level of education makes it difficult to expand industrial production simultaneously with the necessary public institutions. Moreover, the political situation in Timor-Leste has recently deteriorated and conflicts have erupted. It seems fair to conclude that such political turbulence is to a large extent a result of inadequate economic progress (e.g. World Bank 2006).

The challenges for Timor-Leste are, hence, substantial but by no means impossible to meet. The main reason for optimism stems from expected large revenues from oil and gas in the near future. Revenues amounting to several billion US dollars will be collected and invested in a petroleum fund. If properly managed, these revenues will provide a golden opportunity to pursue development-oriented policies. The international experience of resource revenue management is not encouraging, however: many resource-rich countries fail to bring about sustained development and remain poor. The reason is a combination of negative economic effects stemming from volatile revenues, decreasing competitiveness of tradable goods, increased corruption and institutional inefficiencies.

The purpose of this paper is to analyse the potential for Timor-Leste to translate large oil and gas revenues into sustained economic development. We start by discussing the magnitude of oil and gas reserves in Timor-Leste. This is not a trivial matter considering that political and geographical uncertainties make estimates difficult. More precisely, oil and gas prices are volatile, borders with neighbouring countries are unsettled, and seismological explorations remain inadequate. We continue with a discussion of the difficulty of combining oil revenues with development. A number of reasons are identified, such as 'Dutch Disease', volatile public revenues, and rent-seeking behaviour by domestic actors. The third issue to be discussed is to what extent Timor-Leste can be expected to suffer from these problems. Special emphasis is put on the role of the US dollar in Timor-Leste, the poor level of institutional capacity, and the alleged rise of corruption. We continue with lessons that may be learned from other countries on how to solve the problem of combining oil and development. In particular, some relevant lessons from Indonesia are discussed, and so is the newly established oil fund. The paper ends with some concluding remarks.

Oil in Timor-Leste

Oil revenues in Timor-Leste will be large over the next decades. The exact magnitude is highly uncertain, however, and estimates have been substantially revised time after time. The uncertainty is twofold. The price of oil is very volatile but it is also uncertain how much oil will be found in the territory of Timor-Leste, and how large this territory is. The former issue cannot be solved without more seismological exploration. The second issue concerns the controversy with Australia over the sea boundaries.

Volatile oil prices

Oil prices are very volatile, ranging from under US$10 per barrel in July 1986 to around US$68 in August 2005. The volatility is high even within single years. For instance, prices in 2005 varied between US$38 and US$68, a difference of 78 per cent. Any prediction of future oil revenues has to consider the question of whether the current high oil price will remain or the volatility will continue with new declines in the price. Some observers suggest that the high oil price is here to stay because of a structural shift in the oil market where too little investment in oil production will lead to a shortage for the foreseeable future. Others argue that the current high price is due to cyclical factors, such as the war in Iraq, strikes by oil workers in Venezuela in 2002, problems in Nigeria and an unsustainably high oil demand in China.[1] The different opinions with respect to the causes of high oil prices and their future movement underline the high degree of uncertainty and the difficulties of calculating the value of any oil and gas reserves in Timor-Leste.

Territorial disputes

The controversy over the maritime boundary between Timor-Leste and Australia goes back to the colonial days. Indonesia and Australia agreed on a boundary in 1972 based on the principle of the 'continental shelf' rather than on the distance between countries (King 2002: 3). Australia successfully argued that the Timor Trough was a natural boundary since it separated the continental shelf of Australia from that of Timor (and other parts of Indonesia). Portugal, however, refused to accept this argument and maintained that the natural boundary would be half way between Australia and East Timor. Australia continued to argue that the natural solution would be to draw a straight line between the two ends of the boundary negotiated with Indonesia (see Appendix Figure A1).

While the maritime border between Australia and Indonesia had been determined both west of the West–East Timor border and east of the island of Timor, no agreement was reached on the portion corresponding to the extension of East Timor itself before the Indonesian occupation. A 'gap' remained on the map, a gap that became known as the Timor Gap (Antunes 2002: 5).

The occupation meant that an agreement on the Timor Gap was to be made between Indonesia and Australia, and negotiations started in 1979. This time, however, Indonesia was not willing to place the boundary in accordance with Australia's continental shelf argument, mainly because international praxis by then had become less favourable to the latter (Antunes 2002: 10). No boundary agreement could therefore be reached and it was decided instead that the disputed area would be a Zone of Cooperation for joint development.

The independence of Timor-Leste has brought the boundary issue up again. As in the previous disputes, the disagreement is whether the boundary should be based on the distance between Timor-Leste and Australia or on the principle of continental shelves. The latter argument is weaker now than at the time of the 1972 settlement between Indonesia and Australia. A large number of similar cases around the world have been settled and they support a boundary based on distance (Dusevic 2004). Also, it has been questioned whether the line of division between the continental shelves is really located in the Timor Gap; some reports suggest that the division is actually found north of Timor-Leste (Bugalski 2004: 291). The Australian refusal to let the dispute be solved in the International Court of Justice is an indication that Timor-Leste's case is relatively strong (McBeth 2004).[2]

Timor-Leste is also claiming areas to the east and west of the Zone of Cooperation. The previous boundary takes into account the location of some very small Indonesian islands. This may be against international law and Timor-Leste has protested against it (Bugalski 2004: 291–2).

The Australian dilemma is twofold. An agreement based on the principle of a median boundary between Timor-Leste and Australia would basically place all the oil and gas fields within Timor-Leste's territory (see Appendix Figure A2). Also, Australia is afraid that by giving in to Timor-Leste it will open itself up to Indonesian complaints and renegotiations of the 1972 agreement as well (McBeth 2004).[3]

Soon after 1999 it became obvious that the negotiations between Timor-Leste and Australia were going to be difficult and the United Nations Transitional Administration in East Timor (UNTAET) concluded an agreement with Australia that secured the continuation of the work in the Zone of Cooperation, henceforth renamed the Joint Petroleum Development Area (JPDA) (Antunes 2002: 13). The Timor Sea agreement was signed in March 2003. Australia offered Timor-Leste a more favourable agreement whereby the country received 90 per cent of the oil revenues compared to the previous Indonesian share of 50 per cent (República Democrática de Timor-Leste 2003). All of the JPDA is north of the median line and, hence, in the area claimed by Timor-Leste.

Australia is continuing to take all, or the bulk of, the revenues from a number of fields that are in the immediate vicinity to the west or the east of the JPDA, such as the Corallina and Laminaria fields to the west and the Sunrise field to the east. The country is accused of delaying any settlement and in the meantime exhausting the reserves in areas claimed by Timor-Leste (Gavin 2004).[4] Australia is also continuing to issue exploration licences in the disputed area (Bugalski 2004: 290).

The Timor-Leste oil reserves

The exact size of the gas and oil reserves of Timor-Leste is not known since the area has been under-explored and all geological reports on Timor-Leste were destroyed in the conflict in 1999 (ESCAP and UNDP 2003: 25). A more careful mapping of Timor-Leste's natural resources conducted in 2002 suggested that the country possessed rich mineral and hydrocarbon resources (ESCAP and UNDP 2003). Another major seismic survey was completed in 2005. It indicated that the probability of large endowments of oil and gas was high (Demongeot 2005).

Appendix Figure A2 shows some initial estimates of the gas and oil potential of the island of Timor. Most prospects are found in Timor-Leste and relatively few in West Timor. Moreover, it is the south coast and the area in its immediate vicinity that are the most promising areas for gas and oil. No oil and gas deposits have been identified on the north coast of Timor-Leste, and no production has begun anywhere in mainland Timor-Leste.

All of Timor-Leste's oil and gas production presently takes place in the JPDA (see Appendix Figures A1 and A3). Most oil extraction is concentrated in the Bayu Undan field, where production started in April 2004. The gas reserves at Bayu Undan are estimated to be about 400 million barrels of liquid and 3.4 trillion cubic feet of gas (Timor Sea Office 2006a). These reserves are expected to last for about 20 years and they have an estimated value of US$6–7 billion (Kyne 2005).

Elang Kakatua is the only other field presently being developed. It contains relatively small amounts of gas, and is expected to be exhausted in the next few years. The Phoenix field is located next to the Bayu Undan field in the JPDA, but it has not yet been developed. It is estimated to contain about 2.3 trillion cubic feet of gas.

The Sunrise field had been discovered as early as 1974 and is expected to be even larger than the Bayu Undan field. Estimates suggest that it contains about 8.3 trillion cubic feet of gas (three times that of Bayu Undan) and another 200 million barrels of gas (International Monetary Fund 2005: 19). The problem with the Sunrise field is that it is located both in the JPDA and in the disputed sea area. Australia is to receive 82 per cent of the revenues from the sunrise field and Timor-Leste 18 per cent. The shares were decided in an agreement made in March 2003, but the Timorese government was not pleased with the outcome and wanted a larger share. In 2007, the two countries signed an agreement where each will receive half of the revenues and where the maritime negotiations are deferred for 50 years. Such an agreement is expected to bring Timor-Leste a total of about US$13 billion from the Bayu Undan and the Sunrise fields.

Some estimates suggest that Timor-Leste's (unchallenged) part of the Timor Sea may contain half a billion barrels of light oil and some 10 trillion cubic feet of gas (Chua 2005). Independent contractors will undertake extraction in Timor-Leste's part of the Timor Sea. The government is presently trying to create interest in extraction rights among international oil companies. In a first stage, about 30,000 square kilometres between the southern coast of Timor-Leste and the JPDA are to be explored by foreign investors (Chua 2005). The government is expected to get a substantial share of the revenues: a royalty of 5 per cent of gross output, 40 per cent of the profits, and a 30 per cent tax on profits from the contractor's share (Demongeot 2005). How attractive these conditions are for the contractors and whether this will result in active participation remains to be seen.

The resource curse

Natural resources have sometimes been seen as a curse because of the weak economic performance of many resource-rich nations. Countries such as Nigeria, Zambia, and Guyana are relatively resource rich but have also displayed very slow growth over the last decades and are poor in terms of GDP per capita. To what extent this finding lends itself to generalization is subject to dispute (cf., for example, Davis 1995). This need not concern us here, since we are dealing with an individual country. Much depends on the time period under investigation, and much undoubtedly depends on policy, notably how the natural resource rents are spent, and the latter, in turn, is dependent on the quality of the institutions of countries and the appropriability of the natural resources (Boschini *et al*. 2007; Mehlum *et al*. 2006). Nevertheless, a number of resource-rich countries have not been successful in lifting the population out of poverty despite their wealth of resources (Auty 1993, 2001; Sachs and Warner 1995, 1999). In addition, resource-rich countries tend to have a more unequal income distribution, less democratic regimes, and more corruption (Palley 2003). These findings may sound surprising but while rich resource endowments were an advantage for industrialization and growth during the nineteenth century, falling transport costs have later reduced this growth effect and such endowments might instead lead to various problems, as discussed below.

Countries with rich oil endowments easily fall prey to the resource curse and as a group they have performed economically worse than other countries over the last couple of decades (Sachs and Warner 1995: 11). In fact, after some years of rapidly rising incomes, most oil-rich countries have seen their per capita incomes fall back to the levels of the 1970s or 1980s (Karl and Gary 2004: 35).

There are several mechanisms behind the observed negative relation between natural resources and economic growth. The World Bank (2005c: 304) makes a distinction between two sorts of mechanisms: economic effects and institutional effects. One economic effect is the so-called Dutch Disease: an appreciation of the currency due to increased export revenues from resource exports that may shift resources away from sectors with high growth potential to non-tradable sectors with lower growth potential (Corden and Neary 1982). In an economy that has its own currency this shows up in two different ways. In the first place, the domestic currency will appreciate as foreign currency flows in as a result of oil and gas extraction. The domestic cost level then rises in terms of foreign currency and it becomes more difficult to export goods and services other than those which led to the original inflow. The inflow of foreign currency also increases the money supply and with that domestic demand and hence the price of non-traded goods. (The price of traded goods, on the other hand, will remain constant since this is determined in the world market.) Production factors are then pulled out of the traded goods sectors and into activities producing non-traded goods.

Moreover, prices of natural resources tend to be volatile, as shown by the example of oil above. Volatility has negative effects on economic development. For instance, the boom and bust cycle of resource prices tends to make a country overspend during the boom period, and because of the uncertainties, it also tends to lead to high interest rates, and thereby to less investment in other sectors of the economy (Hausmann and Rigobon 2002).

Another explanation – perhaps the most important one – is that resource endowments may ruin institutions and increase rent seeking. Firms and individuals become more focused on lobbying for economic rents than on efficient use of the resources (Lane and Tornell 1995). A number of studies have demonstrated that resource-rich countries tend to have poor institutions and that these poor institutions explain almost all of the poor growth performance.[5] One suggested reason is that windfall profits from natural resources tend to corrupt the bureaucracy by shifting its focus away from delivering public services to fighting for control over the rents (Sala-i-Martin and Subramanian 2003). Some observers claim that oil is more related to corruption than any other line of business, with the exception of arms deals (Gutiérrez 2003). It should also be noted that even when oil-rich countries attempt to provide, for example, health and education to the population, the results tend to be relatively poor because of the lack of rigour and perseverance in the implementation and the control of costs and outcomes (Karl and Gary 2004: 36).

Is Timor-Leste at risk?

Poor resource-rich countries with poor institutions are those most likely to fall into the resource curse trap (Bulte *et al*. 2005: 1039). Timor-Leste is therefore at obvious risk of suffering from Dutch Disease, falling into the trap of overspending, or seeing corruption and inefficient institutions constrain future development.

The two Dutch Disease effects – appreciation of the currency and an increased price level – are both negative for the non-oil tradable sector. Since the currency of Timor-Leste is the US dollar, however, the former effect disappears. What remains is the latter effect: an increased money supply, increased demand, and higher prices of non-traded goods. The competitiveness of traded goods is eroded when wages and prices on inputs increase but output prices remain at the world level. Alternatively, as in the case of Timor-Leste, it becomes difficult for sectors that attempt to establish themselves in the export market to compete for resources. Thus, there is a risk that large oil revenues may act as an obstacle to the development of non-traditional exports and in addition create difficulties for the traditional exports of coffee. This seems to be a real threat, especially when we consider Timor-Leste's already relatively high prices and wages. One serious consequence of such development is the resulting failure to generate employment in the modern sector for a rapidly growing population (Lundahl and Sjöholm 2006: 10).

One problem with oil extraction is that it is conducive only to relatively weak linkage effects that can be used to encourage the creation of a modern sector in Timor-Leste. Purchases of domestic inputs are very small and relatively few local citizens are employed in the oil sector. The government is trying to persuade the Australian government and the oil field operators that some refineries should be located on the south coast of Timor-Leste. The idea is that these refineries would increase the number of linkages with the local economy. The distance from Timor-Leste to the oil fields is less than half the distance from Darwin to the fields, which is an argument in favour of a Timor-Leste processing industry. This, however, means that the pipeline has to cross the very deep Timor Trough, and this may create some technical difficulties. Whether the government will be successful is highly uncertain, since a pipeline to Darwin is already under construction at a cost of US$500 million (Timor Sea Office 2006a). Accordingly, a US$1 billion processing plant is being set up in Darwin, in addition to already existing plants and infrastructure.

One obvious type of linkage effect from oil revenues could be public spending. However, the administration does not function well and public expenditures are constantly falling short of budgeted ones (Lundahl and Sjöholm 2007). The government has experienced huge difficulties in executing public spending, partly as a result of the highly centralized system where all expenditures have to be cleared by Dili. Another major problem is a widespread lack of administrative capacity which results in slow budget implementation. It is therefore noteworthy that the budgeted expenditures as a share of GDP have increased almost threefold in the 2006–07 budget. The increase is planned to include both increased capital expenditures and increased recurrent expenditures (International Monetary Fund 2007: 5). Considering the present situation, it seems likely that Timor-Leste will find it difficult to implement the large increases in public spending which is budgeted for 2006–07.

Again, it seems likely that the ability to substantially increase public spending will be limited in the short and medium term. It is therefore somewhat paradoxical that overspending is the problem that has been most discussed in Timor-Leste. The Timor-Leste government is aware of the uncertainty of future oil revenues and of the problem of overspending in other similar countries. This is one of the main reasons why an oil fund has been set up (see the discussion below). However, it is also widely acknowledged that Timor-Leste has so far avoided the trap and that it is pursuing a prudent macroeconomic policy (e.g. World Bank 2005b: 6).

Finally, institutions are very weak and many crucial ones, such as the judiciary and the Ministry of Finance, are totally dependent on foreign expertise. So the relevant question is not whether windfall revenues will destroy existing institutions but rather whether they will become an obstacle to their development.

The main risk is if bureaucrats are seeking ways of enriching themselves rather than focusing on the provision of public goods. Again, this type of behaviour is likely to increase in situations with large inflows of oil revenues. The risks are particularly high in countries, such as Timor-Leste, which are characterized by a lack of an efficient civil service, a legal system, tax authorities and media (e.g. Karl and Gary 2004: 40). Other high-risk countries are those without democratically accountable leaders, active civil societies and transparent policy processes. Here, Timor-Leste has performed better than many other oil-producing developing countries.

Corruption appears to have been relatively uncommon during the first few years of independence, at least compared with many other countries in the region. Lately, however, rumours have begun to circulate to the effect that corruption is on the rise. For instance, a World Bank report claims that this is the case and that it may seriously jeopardize the country's economic development (World Bank 2005b: 5). Some observers also mention that alliances between state and business interests could create another future problem. Finally, it is claimed that border and port officials take bribes to ignore the widespread smuggling of goods from Indonesia, and public officials are said to occasionally accept money in connection with public procurements (e.g. Dodd 2005b; UNOTIL 2005a, b).

The government must take the potential problem of corruption and its negative effect on institutions seriously. It is therefore positive that former Prime Minister Alkatiri ordered a criminal investigation following a report on alleged cases of corruption (*Timor Post* 2005). More precisely, the Office of the Inspector General, with the assistance of the United Nations, completed investigations of sixty-six cases of alleged corruption between 2001 and 2005 (UNMISET 2005). Five cases were deemed to be criminal acts, including theft, bribery and falsification of official documents. The remaining sixty-one were considered as instances of negligence by public officials. Some ministers repeatedly claimed to be involved in corruption were removed in the mid-2005 reshuffle of the government.

However, some observers are more pessimistic and note that none of the cases that have so far been referred by the government for prosecution have proceeded. It has also been claimed that corruption has reached the very core of Timor-Leste's leadership. For instance, three alleged cases of corruption originate in the Office of the Prime Minister (Montlake 2005). One of the former prime minister's brothers received lucrative ammunition purchasing contracts in a public procurement that has been characterized as non-transparent (Dodd 2005a). The government, however, argues that the allegations of corruption are highly exaggerated and based on rumours, and that the close monitoring by international organizations provides an effective obstacle to corruption among public officials.[6]

One reason why courts have been slow in the corruption cases is that the judiciary is not functioning in Timor-Leste. All court procedures are tedious and drawn-out. As a result, there is a large backlog of cases to be taken up in court, numbering more than 1,000, with the result that defendants are kept longer in custody than what is legal (Clausen 2005). There is also a severe lack of qualified personnel in all areas of the judiciary and it is only the presence of foreign experts that enables the system to work even at a rudimentary level. When, recently, an examination of the Timorese judges was undertaken, *all* of them *without exception* failed to meet the established standards. They had to be removed from their posts and put into full-time training programmes. International judges had to be appointed to fill the gaps, but this is of course nothing but a desperate short-term stop-gap measure that will not solve the long-term problem (International Monetary Fund 2005: 10). A two-and-a-half-year training programme for local judges has been initiated and financed by Portugal. However, the programme is in Portuguese, a language that few of the judges understand (Clausen 2005).[7] It should also be noted that there are allegations of corruption even in the judiciary. For instance, a number of prosecutors are under investigation for taking bribes, often in order to drop charges (UNOTIL 2005c). It thus seems likely that it will take considerable time before the judiciary will work efficiently and without the help of foreign experts.

Learning from the occupant

One should not let the above description of potential risks with rich endowments of natural resources obscure the fact that Timor-Leste would be in a worse position without these endowments. Compared to most countries at a similar development level, the oil and gas revenues of Timor-Leste bring the opportunity to make valuable investments in, for instance, infrastructure, education and health. It also means that Timor-Leste has no public debt and that it enjoys a budget surplus, two economic features that are uncommon in developing countries.

It should also be mentioned that there are countries that have been successful in combining large revenues from natural resources with high and sustainable economic growth and social development. Interestingly, one of the prime examples is Timor-Leste's former occupant, Indonesia (World Bank 2005c: 306–7).

Indonesia is Southeast Asia's largest oil producer and the country faced dramatically increased revenues after the oil boom in 1974. The oil boom years were characterized by very high economic growth, low inflation, and prudent fiscal policies (Hill 1996). Herein lies one explanation for Indonesia's successful development. The government managed to balance the large inflows of oil revenues by pursuing a prudent macroeconomic policy, and it did not fall into the trap of overspending (Usui 1997).

Moreover, Indonesian economic growth was fuelled by strong growth in agriculture and manufacturing.[8] Growth in agriculture was to a large extent the outcome of the explicit Indonesian strategy of using oil revenues to improve the competitiveness of agriculture (e.g. Booth 1988). (Growth of manufacturing was more the result of import protection (Warr 1984, 1988), which meant that this sector had to be substantially restructured during the 1980s and 1990s.) The growth in industry and agriculture was also supported by currency devaluations in the 1970s and 1980s that partly offset the appreciation of the real exchange rate caused by large oil revenues (Usui 1997: 158). Hence, Indonesia avoided the Dutch Disease that leads to decreasing competitiveness of the country's tradable sectors.

The government also pursued policies that allowed a large proportion of the population to benefit from the increased revenues. For instance, efforts were made to expand the provision of health and basic education after the oil boom (Sjöholm 2005: 43; Thee 2002: 203). Moreover, substantial resources where used in infrastructure projects in more backward parts of the archipelago through the *Inpres* program (Sjöholm 2002: 384).[9]

An interesting question is why Indonesia succeeded in pursuing a sound economic policy when so many other resource-rich countries failed. Perhaps the most important reason has been the strong and unique role of economists or 'technocrats' in Indonesian policy making since the launching of the 'New Order' in 1966 (Thee 2002: 194–6). Unfortunately, the reason why the technocrats got such a strong role in the policy process seems to have a lot to do with the specific context of Suharto's Indonesia at the time and may therefore be difficult to use as guidelines for other countries.

While it is difficult to use the Indonesian example (notably tariff protection) to prescribe direct policies for Timor-Leste, there are nevertheless a couple of aspects worth considering. First, it is of the utmost importance that increased oil revenues are accompanied by a sound macroeconomic policy. Second, oil revenues bring an opportunity to improve the competitiveness of tradable sectors and social development. In particular, it would be wise to follow the Indonesian example of channelling resources to the agricultural sector, considering the importance of agriculture for the overwhelming majority of the population of Timor-Leste.

The petroleum fund

It is clear that Timor-Leste will be in a fortunate position with large increases in government revenues and large budget surpluses over the coming years. The discussion above also suggests that there is a serious risk that the large oil revenues will cause economic problems for the country, if not dealt with properly. Again, the main risks are that the volatility of the oil incomes will make it difficult to make long-term plans, and that windfall gains will increase corruption and bureaucratic inefficiency. We have also discussed Timor-Leste's weak institutional capacity. One manifestation of this problem is that the budget implementation is running behind schedule, even in a situation with relatively modest expenditures (Lundahl and Sjöholm 2005: 31). The main reason for the lag is that there is a lack of administrative capacity to increase government spending. Together with the low general level of development, this means that the capacity to spend large and increasing amounts of oil revenues in an efficient way is seriously constrained.

One approach to the spending bottleneck is to save the oil revenues and not use more than what can be efficiently spent. The government of Timor-Leste will pursue such a policy and has created a petroleum fund. The fund has been set up with the Norwegian oil fund as a model, and Norwegian advisers have been providing the necessary knowledge. The regulatory framework surrounding the petroleum fund explicitly addresses transparency and accountability issues, which the Norwegian oil fund does not, and it is therefore sometimes referred to as the 'Norway Plus Model' (Drysdale 2005). The Ministry of Planning and Finance will be responsible for the fund and the operational management will be entrusted to the Central Bank. A special steering committee will be set up to advise the ministry, and auditing will be performed by an independent, external, agency.

The basic idea behind the fund is to guarantee that the expected oil revenues over the next twenty to thirty years are spent wisely, in the interest of the economic development of the country (Ministry of Planning and Finance 2004). To ensure intergenerational equity, the fund builds on the perpetual income concept, i.e. in the longer run the real value of petroleum wealth should be kept constant over time. The permanent income of the fund will be spent each year, and anything in excess of that will be added to the fund. More precisely, only the interest component on the sum of current assets and expected future revenues is spent every year. In Timor-Leste this is referred to as the Estimated Sustainable Income (ESI), to be revised annually. The ESI is the maximum amount that can be spent. It is likely that the capacity to spend will remain below the ESI in the immediate future, which means that the difference will remain in the fund and increase the ESI in coming years.

The Petroleum Fund Law was approved by parliament on 27 June 2005. This law is the basic tool for managing the oil fund (Drysdale 2005: 2). It provides guidelines for how much of the fund should be withdrawn and how the revenues should be invested. It also establishes penalties for any mismanagement of the fund and provides instructions for the establishment of a consultative council (Democratic Republic of Timor-Leste 2005a). Other parts of the regulatory framework include the Petroleum Act and the Petroleum Tax Law from July 2005.

The Petroleum Fund Law states that all income from oil, including profits, royalties and taxes, should be invested in the fund. The fund should be invested abroad in low-risk financial assets and the returns on these assets are to be reinvested in the fund. The reason for the latter requirement is the desire to put less pressure on the domestic economy and reduce the risk of corruption and bad governance. Transfers from the fund have to be approved by parliament and can be spent only via the government budget (Drysdale 2005: 3).

It is difficult to estimate the size of the petroleum fund, and hence also the scope for withdrawals. Oil and gas revenue is presently projected to rise until 2011 and then fall off towards eventual exhaustion in the mid-2020s. The projections are, however, uncertain, with respect to both timing and magnitude (Cotton 2005: 188–90). As discussed above, the exact size of the reserves is not known and the maritime boundary between Timor-Leste and Australia has not yet been determined. Most importantly, the present forecasts include only potential revenues from currently exploited fields. Hence, the extraction from new fields, which are likely to be in operation in a few years' time, is not included, meaning that the forecasts are conservative. More precisely, it is estimated that Timor-Leste will receive revenues of around US$5 billion given the present maritime boundaries with Australia but almost three times as much under a settlement that is favourable to Timor-Leste's boundary claims (Timor Sea Office 2006b).

The pace and cost of extraction remain uncertain and the oil price will also have a large effect on the size of the petroleum fund. As an example, forecasts made in 2004 showed expected oil revenues of around US$3.7 billion. However, with a price that is US$5 lower per barrel the figure shrinks to some US$2 billion, and with a US$5 higher price, it increases to US$5 billion (Ministry of Planning and Finance 2004: 7). The base scenario is rather conservative with a predicted oil price which is not only US$5 lower than the NYMEX (New York Mercantile Exchange) figures but also discounted by an additional 15 per cent.

Given the qualifications above it should be clear that the predicted ESI is likely to change substantially over the years. In our opinion, it is likely to increase rather than decrease. The net present value of oil and gas revenues from the two existing fields is estimated to be about US$3.2 billion. To put the figure in perspective, this is more than nine times Timor-Leste's 2004 non-oil GDP (International Monetary Fund 2005: 16). In the public budget for 2004–05 the size of the ESI is given as US$100 million (Democratic

Republic of Timor-Leste 2005b). Hence, the prediction is that the government can spend US$100 million from the petroleum fund from this budget year and for perpetuity. Other projected domestic revenues are estimated at about US$30 million per annum over the next few years. Hence, oil revenues will constitute a substantial share of the total budget revenues and the government plans to spend less than this amount during the coming years.

Given the large assets in the fund and the poor level of development in Timor-Leste, it will be tempting for future governments to increase withdrawals. It is also likely that the risk of such behaviour increases with the political turbulence that seems to be on the rise in Timor-Leste and the increased polarization between the government and the opposition (Lundahl and Sjöholm 2007). As stated above, increased spending requires approval by parliament but this arrangement is not, of course, any guarantee against future misuse of the fund. Countries such as Oman and Venezuela also have similar types of stabilization funds and have made frequent changes to the rules, with negative effects on the economy (International Monetary Fund 2005: 22). There, however, the political situation is quite different. For example, Hugo Chávez has enjoyed a very strong political position for many years, the opposition is weak and the degree of transparency is low. This creates ample room for a spendthrift president. In Timor-Leste the relative strength of the government and the opposition is much more balanced. The present government is a coalition government which may easily break up, and it is certain to be under strong surveillance from the Fretilin opposition. Also, the petroleum fund is only two years old, i.e. it has begun its operations only recently, and it is still premature to start speculating about future misuse.

Bearing this caveat in mind, it still seems clear that the fund is one of the most successful examples of institution building so far in Timor-Leste. One explanation is that the construction of a petroleum fund is presumably easier than setting up other types of institutions, not least when a successful raw model exists (the Norwegian fund) and when foreign expertise has been heavily involved in its construction.

Concluding remarks

Timor-Leste began its independence as one of the poorest nations in the world. Substantial progress has been made thereafter but the challenges for future development are numerous. Still, Timor-Leste is relatively fortunate. Compared with many other countries on a similar income level it receives large international assistance, it has no public debt, and it is running a budget surplus. The large inflow of oil and gas revenues provides a unique opportunity to bring the country out of poverty.

It should be noted, however, that economic development will not be automatic. It requires careful and stringent policies. If not, the black gold might turn out to be the excrement of the devil.[10] The main risk with large windfall gains from resources such as oil and gas is that the government may start to overspend, that income volatility and Dutch Disease wipe out the tradable sector and that corruption ruins institutions and the social fabric of a country. The government is clearly aware of the danger and has established a petroleum fund aimed at the generation of a perpetual and manageable income stream. Whether this measure will be sufficient to avoid the resource curse, however, remains to be seen.

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Notes

1 See Stevens (2005: 28) for a discussion on structural and cyclical explanations for the oil price.
2 Australia withdrew from the section of the International Court of Justice that deals with maritime boundary disputes as late as two months before Timor-Leste's independence.
3 It should be noted that the maritime boundary between Indonesia and Timor-Leste also awaits settlement. It seems that a permanent boundary between these two countries may be affected by the outcome of the negotiations between Australia and Timor-Leste.
4 For instance, Australia receives revenues of US$1million per day from the Laminaria-Corallina and Buffalo fields that are now exhausted to at least 75 per cent (Bugalski 2004: 293).
5 See World Bank (2005a: 306) for a summary of the literature.
6 See, for example, the comments by present President JoséRamos Horta in McKenna (2005).
7 The language issue is highly controversial in Timor-Leste. The choice of Portuguese as an official language and the language of instruction in schools, instead of using the more commonly spoken Tetum or Bahasa Indonesia, seems to have increased political and social divisions.
8 Manufacturing accounted for about 22 per cent of total GDP growth during the oil boom, followed by trade with 17 per cent, agriculture with 16 per cent, and public administration with 13 per cent (see Hill 1996, table 2.1).
9 *Inpres – Instruksi Presiden* (Presidential Instruction).
10 The Venezuelan minister Juan Pablo Pérez Alfonso, quoted in Karl (2003: 8).

Appendix

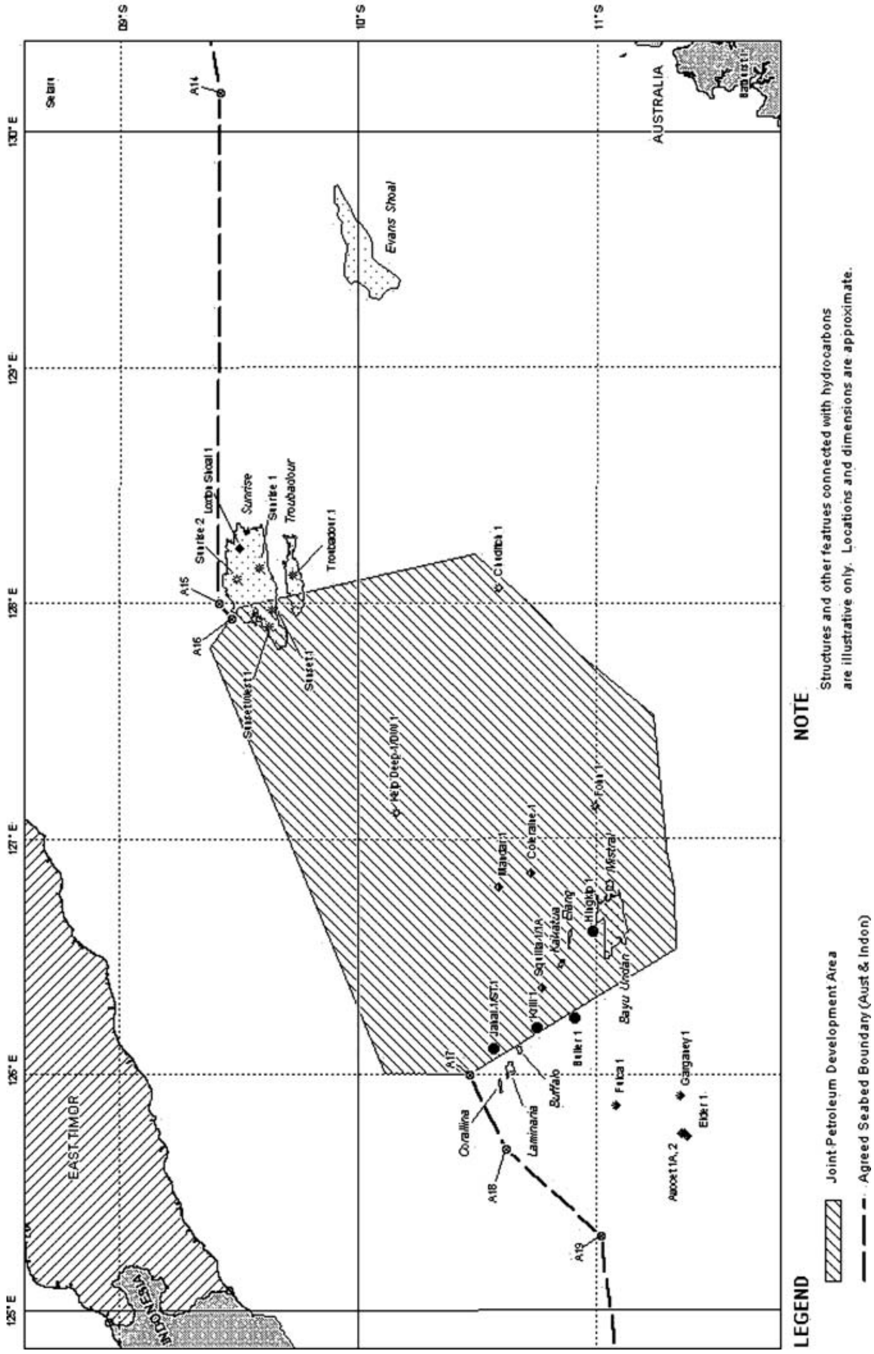

Figure A1 Timor Sea – Joint Petroleum Development Area. *Source*: Timor Sea Office, Dili.

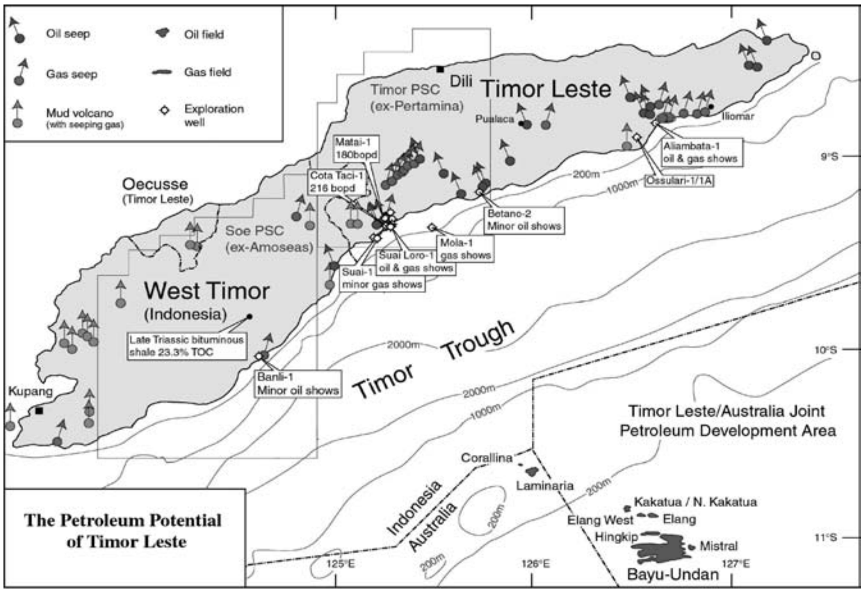

Figure A2 The petroleum potential of Timor-Leste. *Source*: Timor Sea Office, Dili.

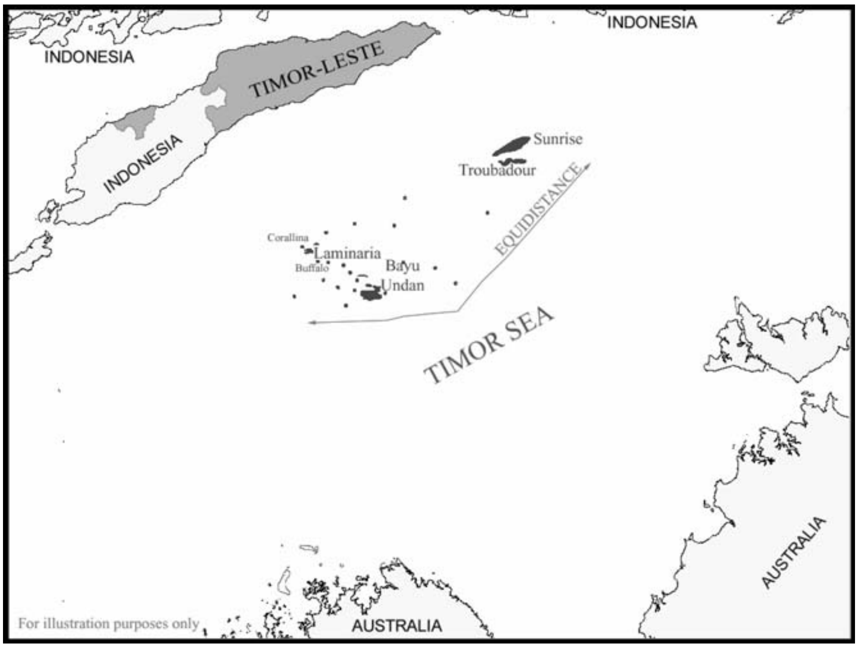

Figure A3 The equidistance line between Australia and Timor-Leste. *Source*: Timor Sea Office, Dili.

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