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Democratic Republic of Timor-Leste

Oecusse Economic and Trade potential

VOLUME I: OVERVIEW OF OECUSSE TODAY & LONG TERM POTENTIAL
VOLUME II: DETAILED ANALYSIS AND BACKGROUND DOCUMENTS

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Oecusse ZEESM

An assessment of Oecusse's current state and its potential

VOLUME I – OVERVIEW OF OECUSSE TODAY & LONG TERM POTENTIAL



Map Source: 1 F. Durand, Internet

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EXECUTIVE SUMMARY

This report in two Volumes assesses the economic situation of the Oecusse district of Timor-Leste today as well as the economic potential of Oecusse and how it may develop in phases with policy interventions, also taking into consideration the authorities' planned Zona Especial de Economia Social de Mercado (ZEESM).

Oecusse is a lagging district in a lagging country. Living standards in Oecusse are lower than Timor-Leste as a whole and of Nusa Tenggara Timur (NTT) which is the Indonesian province that makes up the rest of the island that Oecusse is located on. In Oecusse access to electricity and sanitation is substantially worse than comparators. Literacy is only 43% compared to 63% in Timor-Leste and school attendance is also lower. Oecusse does however, show high levels of trust and social cohesion which could serve a basis for addressing other problems. Some of the poor outcomes, such as in education, can be traced to a legacy of low government expenditure in the sector – For instance, Oecusse receives the least money per capita for education of any district in Timor-Leste.

The economy of Oecusse is heavily agricultural and there is currently no commercial forestry whilst fishing is limited by cultural norms. In Oecusse, 78% of the population is engaged in Agriculture. Most agricultural production in Oecusse is subsistence agriculture and families typically grow a range of crops including maize and in some cases rice to serve family needs. There is also a substantial population of livestock in the district relative to other districts. Agriculture is the backbone of the Oecusse economy. However, even if production techniques used in the rest of Timor-Leste are introduced to improve productivity, estimates suggest the cost of production for seven major products (chicken, pork, beef, mutton, rice, soybean, maize) in Oecusse is still too high to be competitive in export markets. This is driven by high labor costs, relatively unproductive farming techniques and challenges with irrigation.

Expanding agriculture is nonetheless plausible given the significant existing agricultural economy and experience in Oecusse, but constraints remain. The total area deemed suitable for agriculture in Oecusse is just 18,200 hectares. Land is also split among many small-holdings making large scale agriculture investment challenging. Availability of water is limited with rainfall as low as 1 millimeter in September on average. Irrigation schemes have helped to address this but further major expansion is so expensive that it would make paddy production uneconomic in the newly irrigated areas. Beyond these physical constraints the use of swidden (slash and burn) agriculture and the absence of modern techniques hinder agricultural growth. Provision of inputs such as fertilizer and extension services more broadly is also inadequate in part due to limited funding for these services.

In addition, there is an extremely limited tourism sector that is better characterized as a 'visitor economy' serving the needs of visiting officials and development professionals. Barriers to expansion of this sector include poor connectivity, lack of professionalism and training combined with high labor costs, and the absence of world class attractions.

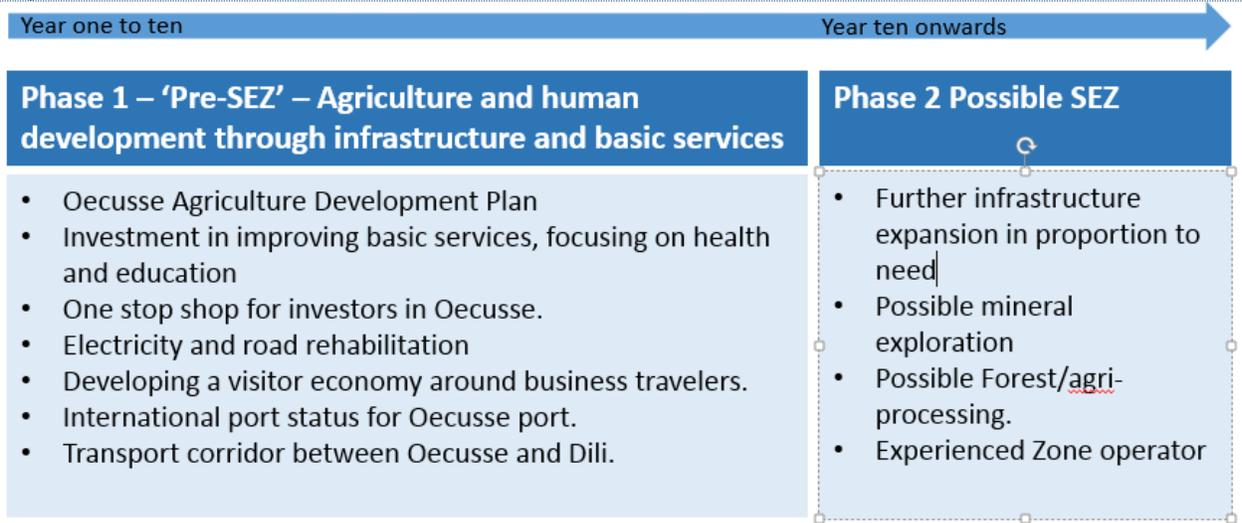
Today Oecusse's trade with both the rest of Timor-Leste and NTT is relatively small although firm estimates are hindered by a lack of data. Formal trade to NTT is facilitated by a system of border passes which allows Oecusse residents temporary transit to NTT for ten days at a time. However, even with this, export trade is very low largely because production is so limited in Oecusse. For example, every week, many of the trucks

that bring imports to Oecusse return empty to NTT. Trade with Dili is primarily conducted via a twice weekly ferry but this is also relatively low. Migration to Dili also occurs primarily via the ferry and there is currently a small net migration from Oecusse to Dili.

Trade overland to Dili is limited by the length and challenges of transporting overland from Oecusse to Dili and the complications of multiple border crossings. Unfortunately, improvements to Oecusse’s port infrastructure will not necessarily allow Oecusse to suddenly trade more. There are no significant shipping routes that currently pass by Oecusse making it difficult to link into regional trade flows. This problem is compounded by the limited production capacity of Oecusse which means Oecusse may struggle to generate the volume of produce required for a dedicated shipping line.

Phase 1 of Oecusse’s development should focus on interventions and sectors that are important regardless of whether a Special Economic Zone (SEZ) is subsequently formalized. Phase 1 could take up to 10 years and includes the current state of Oecusse’s physical, natural and human capital endowments. This phase would focus on reducing poverty by boosting incomes, particularly in the agricultural and forestry sectors, through employment, while contributing to environmental sustainability. Phase 1 could also include policies to enhance the investment climate such as a one stop shop to lower transaction costs for investors. Such policies would improve the likelihood that an SEZ if realized, might succeed. Any plans to progress towards an SEZ should also take into account the lessons from SEZs around the world. First, focus on sectors in which the zone can be most competitive. Second, build appropriate infrastructure tailored to the needs of investors rather than adopting an ‘invest and they will come’ strategy. Third, focus on ease of doing business with particular attention to customs processes. Fourth, make the most of location by tapping into local natural and human resources and nearby markets. Fifth, use experienced operators and developers of SEZs. Finally, invest in the local population to ensure a ready source of effective employees and generate employment.

Figure 1: Phased development



Preliminary estimates indicate that the investment, operating and maintenance cost of basic infrastructure required for full access to education, health, road and electricity services is approximately \$221 million in capital investment and \$71 million in annual operating and maintenance costs. While a very rough analysis, this provides some reference for current plans. The Oecusse Agriculture Development Plan set out in this report would add another \$47.5 million over ten years.

The most realistic sector for the ZEESMS project to focus on is agriculture and forestry. Under the right circumstances, this could grow into agro and forestry processing. There is no existing manufacturing in Oecusse and labor and transportation costs are prohibitively high to envisage a success in manufacturing. Tourism could slowly grow but is likely to remain a 'visitor economy' and interventions should focus on creating basic standards and professionalization as well as improved basic facilities including electricity and water. The prospect for mining, in particular of manganese, may be surveyed, but if viable, production is unlikely to be of a scale that warrants value addition in Oecusse.

Agriculture, whilst uncompetitive in export markets, could be expanded significantly to serve local needs and potentially to reduce the reliance by other districts of Timor-Leste on imports as well. Forestry may, however, hold export potential with teak and mahogany estimated to have a financial internal rate of return of approximately 38% and 23%, respectively.

To achieve growth in agriculture and forestry a detailed Oecusse Agricultural Development Plan (OADP) is proposed. This sets out a broad expansion of agriculture and forestry which is costed at \$47.5 million over a ten year implementation period including improvements to the existing Tono irrigation scheme. This scheme is estimated to have an economic internal rate of return of 10% although this is relatively sensitive to labor costs. This would be supported by improved input provision, extension services, and investments in zero-grazing livestock farming and other agricultural infrastructure. An OADP would benefit thousands of families throughout Oecusse district.

Beyond selecting the right sectors, ZEESM should tailor its plans to ensure the six fundamentals of SEZs are addressed before finalizing one. This should include an effective one-stop-shop for investors, an approach to location that acknowledges Oecusse's constraints but seeks to maximize trade with NTT and Dili, reputable management staff and practices to reduce risk and ensure effective use of funds, and doubling down on efforts in education and health for the local population. In particular, ZEESMs must think hard about the governance structure of the SEZ to ensure the parties tasked with developing and operating a zone have sufficient expertise to do so successfully.

Finally, it will be critical to actively manage social issues related to the ZEESMs project. Two potential issues stand out; migration and community engagement. The ZEESMs development is likely to attract significant migration flows which will require regulation and oversight to avoid problems of social cohesion, crime and trafficking. Second, ongoing community engagement is likely to be critical to buy-in from the local population as well as ensuring their needs are met.

RECOMMENDATIONS

Private sector

The ZEESM authority should consider closer engagement with the private sector at all stages, and prepare a well-articulated Value Proposition, with a clearly defined Social Market Economy concept, that sets out the case for developing a zone or cluster in Oecusse. This will also involve the design and execution of investor surveys.

It is critical to improve the ease of doing business in Oecusse. If set up properly, a one-stop-shop (OSS) can be an effective platform from which to deliver the services sought after by investors for the smooth set-up and operations of their business.

The authorities should collaborate with potential investors to ensure that any connectivity-enhancing infrastructure is appraised to be proportional to the needs, considering full economic costs and benefits. For example, to meet today's demand for transportation of goods and considering estimates of future demand for transportation, a major upgrade of the existing port facilities would not be necessary.

The ZEESM plan should be reviewed to reallocate spending towards health and basic education, adapted to need, and targeting productivity enhancements to match the high cost of labor. As ZEESM develops a clearer sectoral focus, it should consider investing in vocational training facilities for priority sectors.

Agricultural product mix and the proposed Oecusse Agriculture Development Plan (OADP)

Given Oecusse's severe competitiveness challenges set out in Volume I, it will be critically important to select the right mix of products to focus on, which will:

- Have good potential to create high levels of rural employment, and if possible, contribute to improved local human nutrition.
- Have the potential to meet domestic demand currently met by imports without protectionist measures. Rice is the obvious crop, with the local mamramo variety selling for about \$1,000/Mt in Pante Macassar.
- Be likely to increase in demand as ZEESM develops, and the domestic and migrant population grows, such as fresh meat, fruit and vegetables.
- Be reasonably competitive internationally, and complementary in terms of environmental protection, such as a wide range of tree crops including timber and shorter-term tree cash crops.
- Factor in the wishes and aspirations of Oecusse's rural communities, through the adoption of a planning process that ensures stakeholder engagement and commitment.
- Have been identified after costing the Oecusse Agriculture Development Plan (OADP), and analyzing the impact of individual product outcomes in terms of financial, economic and social (employment) impacts¹.

Oecusse's Agriculture Development Plan would be a framework to reach the right mix of products, and should set out an approach that:

¹ To some extent this review has completed a pre-design appraisal of an OADP concept, but there is considerable and more detailed planning and analytical work required before the OADP is finalized, and presented for funding.

- Focuses on rural poverty reduction and nutrition, as poor and under-nourished farmers and their families are often not receptive targets for economic development programs.
- Leverages-in increased support from Timor-Leste's agriculture sector donors from the planning stage onwards.
- Ensures that all interested farmers have access to all, readily available, improved food and cash crop cultivars from partners such as Seeds of Life (SoL).
- Builds on current successes (such as Caritas's communal approach to watershed management), and introduces locally-proven technologies (such as improved cattle feeding using multi-purpose legumes by ACIAR in West Timor and Eastern Indonesia).
- Shifts towards zero-grazing farming. Caritas has some good examples of this management system in Oecusse. Other example can be found in seven sucos in the sub-district of Raumoco (Lautem), where all forms of livestock grazing have been banned resulting in substantial increase in production.
- 'Leapfrogs in' new agriculture production systems and practices, such as the use of barbed wire for fencing using live posts, the use of smothering legumes for weed control in maize crops, and fertilizer micro-dosing for maize production.
- Identifies how to target and train local farmers with the objective of improving their production skills for existing and new products
- Fosters a "rural communal learning culture" which is supported, as required, by OADP resources and budgets.
- Builds on possible synergies which might develop as ZEESM is implemented, particularly in terms of supplying fresh vegetables and locally-produced livestock products.
- Develops the forestry sector, as forest-based products are internationally competitive and large areas of land with a zero opportunity cost are available. Astutely planned reforestation programs could employ large numbers of rural people, including rural youth.

Tourism

In order to develop the tourism sector, it will be important to assess Oecusse's competitiveness through a detailed feasibility study. Before that it is possible to affirm that, in order to develop the sector, it would be necessary to:

- Harness government and private sector activities in a way of addressing pressing needs at the same time as building a foundation for the future visitors. Current major constraints are infrastructure, water, illiteracy; and unskilled labor force.
- Strengthen and support cultural initiatives. There is a need to inventory all performing and crafts groups in order to provide quality support.
- Create and implement regulatory standards such as lodging grading schemes, in order to ensure a quality visitor experience and foster the industry.
- Systematically gather data to inform future policy making (tourism statistics and feedback from visitors).

- Develop educational levels and hospitality training initiatives.
- Improve transport infrastructure as the visitor economy grows, in stages, attending demand and allowing for adjustments to plans as required.

Transport and connectivity:

- Improve the ease of trade with West Timor in both practical and regulatory terms. Specific efforts in the livestock sector could make a significant difference and should be taken forward as a priority.
- Upgrade the status of Oecusse Port to 'international' is recommended for ease of import of materials for the ZEESSMS project.
- Improve the ease of trade with Dili, which involves increased frequency of ferries and reducing the cost of the ferry for commercial products. It also involves significant reform of the border processes and visa requirements when travelling from Dili to Oecusse and in the 'corridor'.
- With a view to the longer term, undertake a study into the logistical, technological and legal requirements of a transport corridor, considering for instance the case of Jordan.
- Government of Timor-Leste should consider the prospect of expanding the provisions for transit traffic between Dili and Oecusse, currently captured in the 2004 Customs Code, and engage with the Government of Indonesia to assess the possibility of mirroring this legislation and facilitating transit traffic.

INTRODUCTION

This report responds to a request from the Government of Timor-Leste (GoTL) and Dr. Mari Alkatiri². The request was for World Bank assistance to collaborate on a range of studies relating to “opportunities in the Special Economic Zone, including community development, trade and competitiveness, and regional integration”. The analysis builds on a Situation Analysis prepared by the ZEESM authority in March 2014.

The transfer of significant responsibility for Oecusse’s development to the ZEESM authority, reflects a political rapprochement and collaboration between Prime Minister Xanana Gusmao and Dr. Alkatiri.

The report is in two Volumes. Volume I presents an overview of Oecusse’s current state in Chapter 1 with analysis of living standards, economic activity including trade, and current constraints. Chapter 2 analyzes Oecusse’s phased economic potential through a range of phase 1 development interventions focusing on agriculture, and considers the pre-requisites for developing an SEZ in Oecusse.

Volume II contains more comprehensive background Chapters with full analysis of Living Standards (Chapter 3), Agriculture (Chapter 4), Transport corridor (Chapter 5) and Migration (Chapter 6). A separate background paper on Tourism is available on request.

Data on Oecusse, and in particular trade and customs data, is more limited than at the national level. The report builds on publicly available secondary data sources (survey and administrative) and in the case of Chapter 5 a short dedicated informal survey.

In this report, references to Timor-Leste are used as shorthand for the rest of the nation, unless otherwise specified. And West Timor is used as shorthand for the western half of the Island of Timor.

Figure 2: Map of Timor-Leste with Oecusse circled



Source: F. Durand 2011

² Dr. Mari Alkatiri is a former Prime Minister of Timor-Leste, current President of the Authority of the Oecusse Special Administrative Region, and leader of the opposition party FRETELIN

VOLUME I: OVERVIEW OF OECUSSE TODAY, AND OECUSSE'S LONGER TERM POTENTIAL

Volume One presents an overview of Oecusse's current state in Chapter 1, with analysis of living standards, economic activity including trade, and current constraints. Chapter 2 analyzes Oecusse's longer economic potential and the possible role and nature of a Special Zone for Social Market Economic in realizing this.

CHAPTER 1: UNDERSTANDING OECUSSE TODAY

To analyze Oecusse's potential, it is critical to understand its current structure and endowments in relation to competitors. Chapter 1 assesses the state of Oecusse today in five sections. The first section provides a relative overview of living standards in Oecusse, and the government spending that underpins this situation. The second section details the existing output in Oecusse focusing on agriculture and the 'visitor economy' and also provides production cost estimates for primary agricultural products. The third section outlines the current constraints to increasing existing production in Oecusse. The fourth section looks at current trade with both Timor-Leste and Indonesia, primarily West Timor. It also considers migration. The fifth section assesses constraints to trade today.

1.1 Living Standards in Oecusse

1.1.1 A snapshot of living standards

This section provides an overview of living standards in Oecusse in relation to the Millennium Development Goals (MDGs) and in relation to two nearby regions. The natural comparators for Oecusse are its immediate neighbors; the whole of Timor-Leste (hereafter in this section TL) and the Indonesian province of Nusa Tenggara Timur (NTT), located in the eastern part of the Lesser Sunda Islands. Further detail behind this overview is provided in Volume II Chapter 3.³

Oecusse today is a lagging region in a lagging country. It faces particular disadvantages in education attainment, access to infrastructure and sanitation, and the share of population in the working age. However, there are more people employed in Oecusse, there appears to be better access to healthcare, and there is stronger social cohesion than in the rest of the country.

Oecusse and the MDGs

Table 1. 1 shows that Oecusse is generally further off track in terms of achieving the MDG's than the nation as a whole.

³ The data used in this section comes from the following sources: (i) 2012 Timor-Leste Household Income and Expenditure Survey (2012 HIES), the only district for which results are statistically significant (ii) 2012 Indonesia Household Survey (SUSENAS); (iii) PNDS-REP quantitative baseline data; and (iv) PNDS-REP qualitative baseline data focusing on the village of Abani, located at the most southern border of Oecusse district with Indonesian West Timor.

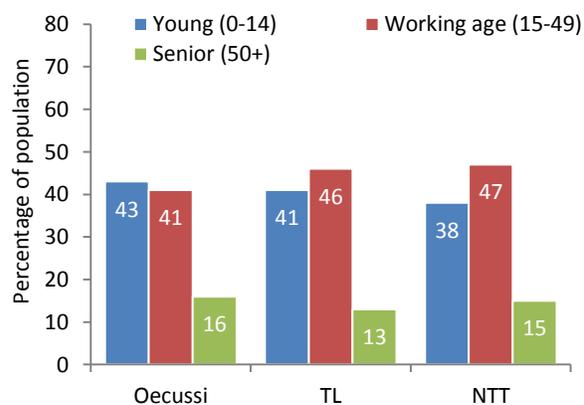
Table 1. 1: Oecusse and Timor-Leste figures compared to the United Nations' Millennium Development Goals (MDG) for 2015 (traffic lights applied for MDG-specific indicators monitored at national level)

Indicator		Oecusse	National
Off-track	On-track	Achieved	
	Population below the national poverty line ⁴ (%)	61	49.9
	Children under 5 classified as underweighted (%)	62.8	44.7
	Population living with less than \$1 a day (%)	60.6	38.8
	Net attendance ratio in primary education	60.9	71.1
	Literacy (%)	29.7	53.4
	Population aged 5-29 that never attended school (%)	35.4	21.4
Ratio Student/Teacher	Primary school	38.2	34.7
	Secondary school	26.7	33.2
	Technical secondary	17.2	19
Number of schools	Primary school	68	1268
	Secondary school	3	78
	Technical secondary	1	17
	Infant mortality rate (per 1000 live births)	45	66
	Under 5 mortality rate (per 1000 live births)	64	92
	Births attended by health personnel (%)	30.9	59
	Percentage of women receiving antenatal care from a skilled provider (%)	83.9	86
	Contraceptive prevalence rate	24.1	22.3
	Health facilities	40	805
Health personnel per 1000 inhabitants	Physicians	0.3	0.3
	Nurses	0.3	0.8
	Midwives	0.5	0.4
	Proportion of children under 5 sleeping under insecticide treated bet nets	44.9	41
	Proportion of women sleeping under insecticide treated bet nets	41	34.2
	Population urban and rural access to clean water (%)	61.6	68.3

Population Profile

Oecusse has a younger population compared to the rest of Timor-Leste and NTT, and has a smaller working population aged between 15-49 years (Figure 1.1). The working age population is notably also skewed towards females with 44% of all women in Oecusse in this age bracket compared with only 38% of all men in Oecusse. This skew is not seen in TL. Today this relatively small proportion of working age male population is a disadvantage in terms of labor force availability. However, the higher numbers of 0-14 year olds will soon move into the

Figure 1.1: Age distribution comparison across regions



Source: SUSENAS 2013 and TL-HIS2012

⁴ World Bank. Timor-Leste Poverty in a Young nation. 2007. The national poverty rate considered is \$0.80.

workforce. This suggests Oecusse may benefit from a small demographic shift that increases the working age population in the next decade even faster than in the rest of the country.

Education

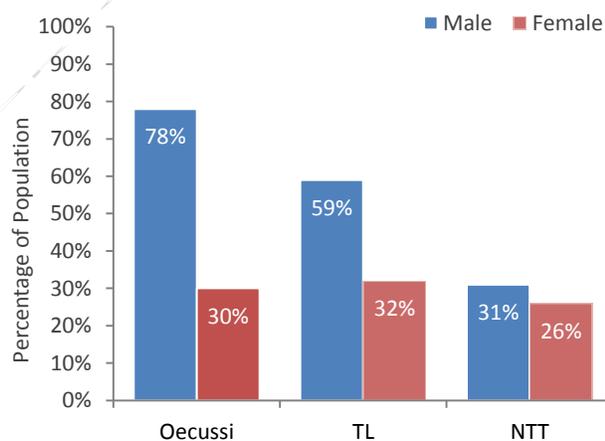
Oecusse’s over-18 population is notably less literate than its comparators. For Oecusse the overall literacy rate is 43% whilst in TL it is 63% and in NTT 88%. Interview evidence suggests this can be attributed to a strong tradition of children assisting with farm work. Only 15% of males and 9% of females have completed secondary education in Oecusse; and 3% of males and zero females have earned a university degree. Nationally, 37% of males and 22% of females have completed their secondary degree, while 9% of males and 6% of females have earned a university degree

Low attendance rates suggest Oecusse is struggling to change its historic disadvantage in education. Oecusse is weak relative to its comparators in school attendance today. School attendance is lower in both primary and secondary school. The corollary is that 14% of households in Oecusse have at least one child aged 6-12 years that do not attend school, while households in the NTT and TL only report 1% and TL nonattendance rate in the same age group respectively.

Employment

Oecusse has a higher proportion of people engaged in agriculture than either of its comparators by a large margin (Figure 1.2). This is consistent with Oecusse being a highly agriculture based district. On the whole agricultural production is for subsistence with many houses growing a wide range of crops including cassava, vegetables, fruits, and maize. Strikingly, 91% of the population in Oecusse either own or lease land for agriculture, while nationally in Timor-Leste only 16% of the population own or lease land specifically for agricultural purposes. This engagement in agriculture appears to be community wide and is also reflected in a slightly lower unemployment rate in Oecusse of 5% relative to 7% in TL.

Figure 1.2: Engagement in Agriculture



Source: SUSENAS 2013 and TL-HIS2012

Housing

Materials used to construct houses in Oecusse are of a more temporary and less stable nature than in comparators. For example, the majority of roofs are built from palm leaves (52%) in Oecusse, compared to TL (14%), and the NTT (2%). Access to electricity is also very limited. Almost 75% of the population of Oecusse is dependent on kerosene as a source of light. In comparison, only 47% of Timor-Leste nationally use kerosene as a light source, and only 36% continue to use kerosene in the NTT. Conversely, 63% of the

NTT use electricity, while only one-fourth of Oecusse have electricity in their homes. This is also much lower than TL where 42% of homes have electricity⁵.

Water and sanitation are also challenging. The majority of households in Oecusse, source water from a pipe (41%) and closed wells (21%), whereas the largest part of NTT's water is sourced from protected springs (29%). Oecusse's access to household water, however, is similar to TL.

For all three regions, the use of pit holes for sanitation is most common. However, in NTT 33% of households have a toilet with a septic tank while that is only true for 15% of TL households and 11% of Oecusse households. In addition, 29% of those surveyed in Oecusse report open defecation compared to 23% in TL and 21% in NTT.

Wealth

Oecusse also lags in asset based measures. Ownership of durable goods such as bicycles, motorcycles, boats, televisions, air conditioners, refrigerators, motorboats and cars were all lower in Oecusse compared to Timor-Leste nationally, and also to the NTT. In particular, on 6% of households in Oecusse own a motorcycle compared with 13% in TL and 29% in NTT.

Health

In a rare positive, Oecusse reports both better health outcomes and easier access to health than TL.

Only 0.4% of households reported a member seriously ill in the last 12 months in Oecusse, while 4% of households reported the same nationwide in TL. Furthermore, 66% of households in Oecusse never had difficulty satisfying healthcare needs, compared to 44% nationally. Only 16% in Oecusse had difficulty satisfying healthcare needs sometimes, compared to the national average of 22%. Usage of health clinics in Oecusse reflects this with 85% of households using the clinics compared to 57% in TL.

Crime and community

Social capital is high in Oecusse - crime is low and community fabric, based on trust, is exceptionally high, but there are also slightly more frequent incidents of community disputes than in the rest of the country. Crime is low in TL overall and even lower in Oecusse. However, incidents of conflict in communities appear to be slightly higher in Oecusse. Nevertheless, trust in neighbors is exceptionally high in Oecusse with 96% of people willing to trust a neighbor to carry money to a relative in Dili in case of an emergency compared with 80% in the rest of TL. This is consistent with the fact that participation in communal events, such as construction projects, traditional and religious festivals is higher in Oecusse than in the rest of the country.

Participation in organized community groups is also higher in Oecusse than in TL. In particular participation is high in savings groups (41% Oecusse; 7% TL); traditional groups (53% Oecusse; 43% TL); and water committees (44% Oecusse; 12% TL).

⁵ Electrification rates are rising rapidly in TL, and the ongoing construction of a 17MW power plant in Oecusse will significantly raise electrification rates there.

Facilities and social security

Oecusse households are more satisfied with drinking water facilities than nationally, but less satisfied with the state of roads and bridges and the quality of schools. The level of dissatisfaction with roads and bridges is extremely high at 95% in Oecusse compared to 80% in TL suggesting this is a major area in need of improvement. Finally, pension and school feeding programs seem to reach recipients in Oecusse to the same extent as in TL.

1.1.2 Government spending

This section lays out the government spending on a range of areas that in many cases are consistent with the living standards outlined above.

Oecusse has been a relatively large beneficiary of recurrent public spending, but lags in Health and Education spending. Recurrent spending constitutes roughly 45% of Government spending and is explicitly disaggregated by districts⁶. Comparing available data on Timor-Leste’s Government spending by District, from 2013 to 2015, Oecusse ranks 4th out of 13 among the districts that most benefited in terms of per capita public spending at the district level.

Figure 1.3: Government’s total expenditure by District per capita (2013- June 2015)

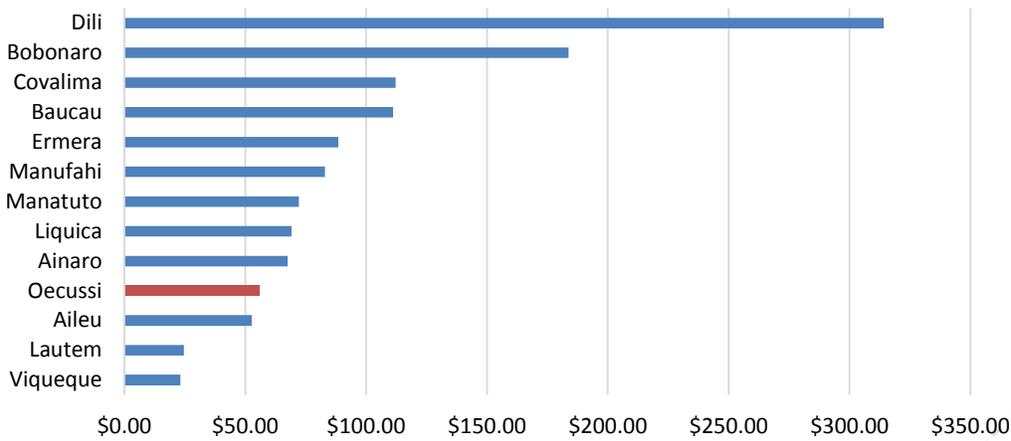


Source: GoTL Transparency portal

When considering health and education, Oecusse is among the districts that have been the most neglected. Considering spending accumulated over 2013-2015, it ranked 11th out of 13 for per capita spending on health. Per capita spending on education is among the lowest of any district in Timor-Leste. This is particularly notable given Oecusse’s very weak educational outcomes.

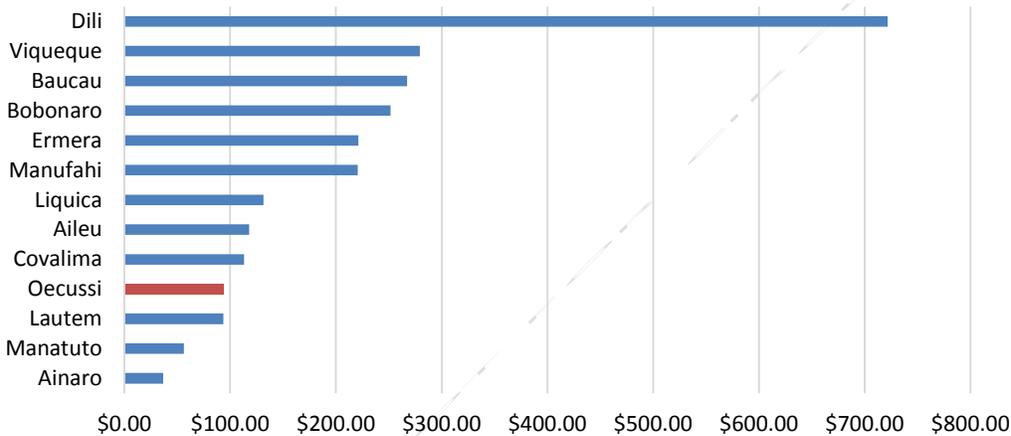
⁶ As Timor-Leste is not yet fiscally deconcentrated, all public spending is considered Central Government spending.

Figure 1.4: Government's expenditure on health by District per capita (2013 - June 2015)



Source: GoTL Transparency portal

Figure 1.5: Government's expenditure on education by District per capita (2013-June 2015)



Source: GOTL Transparency portal

Cumulative spending on infrastructure per capita between 2013 and 2015, has been higher in Oecusse than in most districts, as infrastructure was a priority when ZEESMs was created in 2014. Oecusse ranks 7th in the District Development programs (PDD, PDID), which finances the development of small scale infrastructure according to the needs of local communities (e.g. roads, education facilities, health facilities, water supply and sanitation and irrigation systems). Projects under these programs are tendered to Timorese owned construction companies only. Under the larger scale Infrastructure Fund for national infrastructure, Oecusse is among the districts that most directly benefited, ranking 3rd, due to spending on the Oecusse Region Development Program in 2014, when it was formalized as the Special Zone for Social Market Economy. Given the expressed dissatisfaction with roads in Oecusse, much is yet to be done.

1.2 Existing output: the main products produced and their cost of production

Economic activity in Oecusse is dominated by agriculture complemented by a small ‘visitor’ economy. In addition to regular retail services to the resident population, there is a small array of accommodation and restaurants which cater predominantly to visitors. This economic sector can be termed the ‘visitor economy.’ This section will outline existing economic output first in this ‘visitor economy’ and secondly in the dominant agriculture sector. Volume II Chapter 4 provides in an depth report on Agriculture. A separate background paper on Tourism is available on request.

1.2.1 The ‘visitor’ economy

With a dirt airstrip suitable just for small planes, a basic seaport, irregular electricity supply and limited tourism infrastructure, the tourism sector in Oecusse faces fundamental challenges. Connectivity is one of the most significant challenges to both a broader tourism economy and even to the existing visitor economy and is currently very poor.

Past and current demand for traditional tourism in Oecusse is opportunistic and not growing. Visitors are seasonal and sporadic and can be categorized into two groups. The first group is primarily government, NGO and donor activity characterized by long stays (2-4 months) due to development activities. The second group comes for short stays (2-3 days), and is typically Dili-based and more senior government officials and donor representatives.

These visitors have a small range of accommodation to choose from. In Pante Macassar town there are a total of 12 guest houses (each accommodating 10 -20 people), two hotels (each with 20 or more rooms), and 10 restaurants. Guesthouses (for less than 10 people) have been growing but their long-term viability is unclear. Based on the data collected by the Business Activity Survey of Timor-Leste 2012, the business viability of these guest houses and restaurants is unclear. Interviews conducted in Oecusse suggest the profit of these businesses is relatively low due to the high operating costs.

Presently, accommodation supply is growing haphazardly, in anticipation of visitors relating to the response to ZEESMs and the 500 year celebration of a Portuguese landing in Timor-Leste held in 2015. This supply response fits the previous pattern of accommodation growth in Oecusse, for instance in response to projects such as the construction of the new ferry terminal with JICA support.

Overall the sector is basic and lacks professionalism. Visits to hotels and guest houses in Pante Macassar show that the standard of accommodation is basic and operators do not have experience or training in the hospitality sector. Typically they have expanded from other businesses such as dry good stores or civil construction companies.

1.2.2 Agriculture

This section outlines the current levels of agriculture production in Oecusse and calculates corresponding production costs under the current situation and with assumed increases in productivity equal to those achieved elsewhere in Timor-Leste. Unfortunately, under both these scenarios there are no products in Oecusse's *current* mix of agricultural products which are competitive in export markets. This is why Chapter 2 considers *future* prospects for Oecusse's agriculture sector, and product options under an expanded ZEESM which includes funding for the agriculture sector.

Existing crop production

In terms of staples, rice yields in Oecusse are the lowest in the nation, and maize yields only the 7th best out of 13 districts. Households in Oecusse typically produce multiple crops to meet their own consumption requirements. According to the 2010 Census, summarized in Table 1.2, the majority of households produce some rice, maize, cassava, vegetables, fruit, and coconut. This suggests that very few households concentrate on any one product for commercial sale. Transitioning to a more commercial agriculture sector, particularly for export, would therefore be a major change for Oecusse's rural communities, irrespective if this change is implemented by smallholders, or by investors on consolidated land holdings.

Table 1.2: Household production of crops in Oecusse

	Maize	Rice	Coconut	Fruit (temporary)	Cassava	Vegetables
% of households producing crop	81	78	72	72	68	68

Source: Timor-Leste Census 2010

Production and yield statistics in Oecusse are only available for maize and paddy⁷. Oecusse is the sixth largest producer of maize in Timor-Leste out of the 13 districts. The Zone produces an average of 6,500 Mt of maize per year at a yield of 2.36 Mt per hectare. This yield is the 7th best out of the 13 districts. Oecusse is the seventh largest paddy producer in Timor-Leste at an average of 4,160 Mt per year. However, Oecusse's paddy yield is only 1.88 Mt/ha which is the lowest in the country. Volume II Chapter 4 contains more details in current crop production figures and yields

In addition to crops, Oecusse has small livestock populations. The numbers of various animal types in Oecusse in comparison with other districts are listed in Table 1.3. Oecusse has relatively large numbers of cattle, pigs and goats with 10%, 8% and 9% of the total populations in Timor-Leste, respectively.

⁷ Noting that the quality of agriculture production data in Timor-Leste is very low.

Table 1.3: Estimated Livestock Production in Oecusse

Livestock ---->	Chickens	Pigs	Sheep	Goats	Cattle	Buffalo
No of L/stock	46,158	25,004	1,027	13,344	16,562	1,791
Annual turnoff (%)	75	75	25	25	15%	15%
Annual turnoff (nos)	34,619	18,753	257	3,336	2,484	269
Liveweight turnoff (kg)	1.00	75	35	35	300	300
Dressing %	70	60	50	50	50%	50%
Dressed Weight (kg)	0.70	45.00	17.50	17.50	150.00	150.00
Carcase yield (%)	70	65	65	65	65%	65%
Meat production (Mt)	17	549	3	38	242	26
Total Annual Meat Production (Mt)						875

Source: MAF/FAO production data

Oecusse’s mixed livestock species are kept for home consumption (and asset accumulation) and social and religious purposes. There are small sales to Dili (mainly cattle) and in Pante Macassar, and some illegal sales to West Timor, but the majority of livestock products are consumed locally and not recorded as “official” sales. There are no official estimates of livestock production in Oecusse (in terms of Mt of beef, pork and chicken meat) but it is possible to calculate an approximate figure from first principles. Table 1.3 indicates that total annual meat production in Oecusse (of all types) could be about 875 Mt, perhaps valued at about \$7.0 million.

Oecusse has no commercial production of forestry products. Forestry resources and production opportunities are outlined in Section 2.2.2.

There is some limited traditional fishing for local consumption. This is very small-scale partly because many people in Oecusse do not eat fish for traditional reasons, and because the marine sector has not been scoped in terms of resources. Whether there is potential for significant fishing operations from Oecusse and whether this would be culturally acceptable as a source of employment, requires further analysis, as does the quantification of sustainable marine fish resources.

Crop and livestock production costs

Both financial and economic costs were considered to determine if Oecusse’s agriculture products are competitive. First, financial costs are farmers’ direct cash costs and do not include an allowance for the “opportunity cost” of family labor (but hired labor is costed.) Second, economic costs are expressed in terms of costs to the country, and include: (i) “overhead costs” or non-farm public sector costs which are incurred in the form of extension services; (ii) the opportunity cost of family labor; (iii) the cost of maintaining public sector assets such as irrigation schemes; and (iv) and the opportunity cost of public sector funds invested in irrigation infrastructure. See Volume II Chapter 4 for more details on the costs of agriculture production in Oecusse

Agriculture products have been costed under a current situation scenario, and a potential situation scenario. The latter assumes the application of improved production practices which have been proven in other districts, such as increased crop yields and improved livestock production. Chapter 2 takes a longer-term view of Oecusse’s agriculture sector analyzes a situation in which more major changes in productivity and sectoral structure are considered. Again, Volume II Chapter 4 provides more detail on these two situations.

Table 1.4 details the costs of production (in financial and economic terms) for the current and potential situations on Oecusse, for four major crops. Table 1.5 provides a similar estimate for beef, mutton, chicken and pork.

Table 1.4: Cost of Crop Production and Returns to Family Labor in Oecusse

Crop (1 ha model)	Current Situation		Potential Situation	
	Financial	Economic	Financial	Economic
Irrigated Paddy a/				
Total farm inputs	\$471	\$712	\$1,004	\$1,232
Gross Margin per ha	\$970	\$100	\$1,471	\$163
Gross Margin per Family labour day	\$9.70		\$14.71	
Production (Mt)	2.62		4.50	
Production Cost (\$/Mt)	\$180	\$272	\$223	\$274
Incremental Public Sector Economic Costs (\$/ha) b/		\$375		\$375
Total Production Cost (\$/Mt, paddy - not grain)		\$415		\$357
Rainfed Maize (with storage for potential situation)	Financial	Economic	Financial	Economic
Total farm inputs	\$255	\$500	\$761	\$1,054
Gross Margin per ha	\$145	-\$116	\$864	\$506
Gross Margin per Family labour day	\$1.45		\$8.64	
Production (Mt)	0.80		2.50	
Production Cost (\$/Mt)	\$319	\$625	\$864	\$506
Incremental Public Sector Economic Costs (\$/ha) b/ c/		\$50		\$50
Total Production Cost (\$/Mt) b/		\$688		\$442
Irrigated Legumes	Financial	Economic	Financial	Economic
Total farm inputs	\$180	\$425	\$448	\$684
Gross Margin per ha	\$400	\$126	\$752	\$456
Gross Margin per Family labour day	\$4.00		\$7.52	
Production (Mt)	0.58		1.20	
Production Cost (\$/Mt)	\$310	\$733	\$373	\$570
Incremental Public Sector Economic Costs (\$/ha) b/		\$375		\$375
Total Production Cost (\$/Mt)		\$1,379		\$883
Irrigated Vegetables	Financial	Economic	Financial	Economic
Total farm inputs	\$573	\$799	\$2,609	\$2,771
Gross Margin per ha	\$1,828	\$1,489	\$2,192	\$1,805
Gross Margin per Family labour day	\$18.28		\$21.92	
Production (Mt)	1.60		3.20	
Production Cost (\$/Mt)	\$358	\$499	\$815	\$866
Incremental Public Sector Economic Costs (\$/ha) b/		\$375		\$375
Total Production Cost (\$/Mt)		\$734		\$983

a/ Bases on growing the preferred mamrano variety of paddy and associated price premium.

b/ MAF budget of \$365,000 over 7,000 ha = \$50/ha; 10% return on investment in irrigation (\$10,000/ha) = \$500/ha (2 crops) and irrigation maintenance (2.5% of investment allocated over 2 crops = \$125/ha, total = \$375/ha.

c/ Rainfed production - only share of MAF's budget costs = \$50/ha.

Table 1.5: Cost of Livestock Production in Ocusse

Fin/Econ Cost of Production (CS) a/		Fin/Econ Cost of Production (PS) b/	
Beef		Beef	
Saleable beef (kg/LSU)	1.1	Saleable beef (kg/LSU)	2.7
Number of LSUs	50	Number of LSUs	50
Total beef production (kg)	54	Total beef production (kg)	135
Fin Cost of beef production (\$/Mt)	\$300	Fin Cost of beef production (\$/Mt)	\$3,363
Returns per Family Labour Day	\$5.00	Returns per Family Labour Day	\$3.61
Opp Cost of Family Labour	\$150	Opp Cost of Family Labour	\$450
Cost of environmental damage c/	\$250	Cost of environmental damage (zero)	\$0
Econ Cost of beef production (\$/Mt)	\$7,707	Econ Cost of beef production (\$/Mt)	\$6,696
b/ Damage caused by free-grazing - \$50 per head			
Mutton		Mutton	
Saleable mutton (kg/LSU)	3.3	Saleable mutton (kg/LSU)	8.1
Number of LSUs	10	Number of LSUs	10
Total mutton production (kg)	33	Total mutton production (kg)	81
Fin cost of mutton production (\$/Mt)	\$300	Fin cost of mutton production (\$/Mt)	\$2,572
Returns per Family Labour Day	\$3.17	Returns per Family Labour Day	\$2.00
Opp Cost of Family Labour	\$150	Opp Cost of Family Labour	\$450
Cost of environmental damage c/	\$100	Cost of environmental damage (zero)	\$0
Econ Cost of mutton production (\$/Mt)	\$7,876	Econ Cost of mutton production (\$/Mt)	\$8,128
b/ Damage caused by free-grazing - \$10 per head			
Chicken		Chicken	
Saleable chicken (kg)	17	Saleable chicken (kg)	50
Fin cost of chicken production (\$/Mt)	\$424	Fin cost of chicken production (\$/Mt)	\$3,744
Returns per Family Labour Day	\$4.56	Returns per Family Labour Day	\$3.94
Opp Cost of Family Labour	\$75	Opp Cost of Family Labour	\$125
Cost of environmental damage (zero)	\$0	Cost of environmental damage (zero)	\$0
Econ Cost of chicken production (\$/Mt)	\$4,835	Econ Cost of chicken production (\$/Mt)	\$6,244
Pork		Pork	
Saleable pork (kg)	210	Saleable pork (kg)	338
Fin cost of pork production (\$/Mt)	\$500	Fin cost of pork production (\$/Mt)	\$1,548
Returns per Family Labour Day	\$33.25	Returns per Family Labour Day	\$19.60
Opp Cost of Family Labour	\$150	Opp Cost of Family Labour	\$450
Cost of environmental damage c/	\$175	Cost of environmental damage (zero)	\$0.00
Econ Cost of pork production (\$/Mt)	\$2,048	Econ Cost of pork production (\$/Mt)	\$2,881

a/ CS = Current Situation.

b/ PS = Potential Situation.

c/ Damage caused by free-grazing - \$25 per head

The critical question is how these costs position Oecusse for the possibility of exporting its agricultural produce. In short, are Oecusse’s crop and livestock products competitive? The simplest way to do this is to compare the price of these products if imported into Oecusse (the import parity price⁸) with the costs estimated above if products are produced for export from Oecusse. Figure 1.6 and Figure 1.7 summarize the results of these comparisons under the potential situation.

The analysis shows that without significant intervention (in the form of subsidies), Oecusse cannot compete on international export markets for any of the seven existing agriculture products which were analyzed. For all seven products, the cheapest price that Oecusse could export the products for significantly exceeds the price the product could be imported for, even under the potential scenario with assumed productivity increases. In other words, if a consumer anywhere in the region was faced with a choice between buying these seven agriculture products from Oecusse, or from other sources, they would never choose Oecusse products as they t would always be far more expensive.

Figure 1.6: Comparison of Oecusse Export Parity Prices, and Oecusse Import Parity Prices for Meat Products under Potential Situation

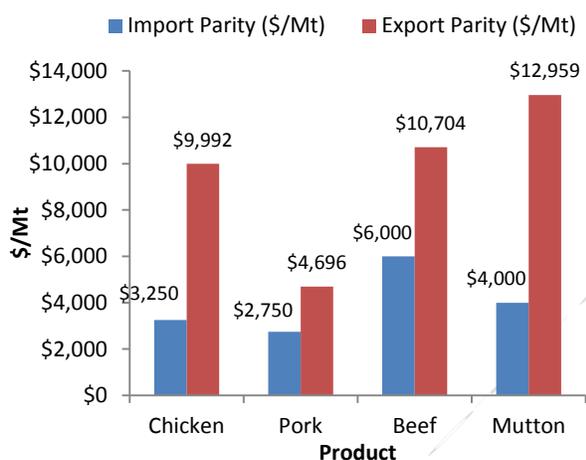
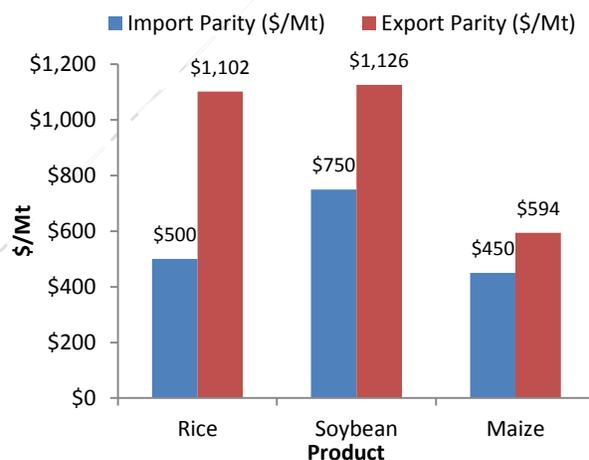


Figure 1.7: Comparison of Oecusse Export Parity Prices, and Oecusse Import Parity Prices for Grain Products under Potential Situation



Source: World Bank staff calculations

1.3 Constraints to increasing production

This section provides an overview of the constraints to production in first the ‘visitor economy’ and secondly the agriculture sector more broadly. This builds on the previous section on production and costs of production by providing a basis for assessing the feasibility of expanding economic output in Oecusse. For agriculture, this section highlights three broad topics: (i) the natural resource endowment of Oecusse; (ii) the human resources and skills related to agriculture; and (iii) the availability of important, largely public, inputs such as infrastructure and agriculture inputs.

⁸ These are based on current international FOB prices, plus the addition of estimated sea freight costs to determine approximate CIF prices landed Oecusse.

1.3.1 The ‘visitor’ economy

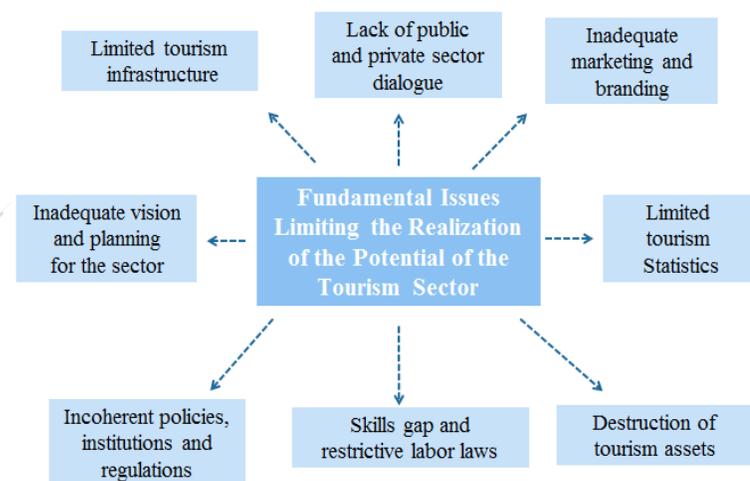
In Oecusse many of the basic requirements for a tourism economy are not in place. Key points that are problematic for Oecusse include:

- A dry tropical climate with brief and unpredictable wet season (about four months) is not conducive to tourism development
- Beaches are not “world class”
- Mountainous areas are degraded with few remaining pockets of natural forest
- The work force is largely untrained with high levels of illiteracy and almost no training in hospitality
- Traditional infrastructure (roads, power, water) are not reliable or adequate for current demand
- Poor access (visa process is cumbersome; road access is poor; entrance by land is bureaucratic and time consuming; and port is functional but only for local, coastal ferries)
- Limited fresh or variety of food (vegetables, fruit, etc.) are available
- A lack of reliable local transport system or services
- Access to land is a constraint for establishing a tourism enterprise and expanding it over time

In terms of issues that relate more to policy than natural endowments there are also a number of challenges as highlighted in Figure 1.8.

Finally, and perhaps most problematically, Timor-Leste's national minimum wage is nearly 30% higher than in West Timor, which at the same time has higher levels of education achievements. According to the Business Activity Survey of Timor-Leste 2012, the average wage per employee in hospitality is higher than that for manufacturing and retail and the wholesale trade, but lower than the national average wage. Overall, this makes it particularly challenging to develop Oecusse into a low cost tourist destination. Further details on the wage situation are provided in the agriculture section below.

Figure 1.8: Challenges to tourism in Oecusse



Source:

1.3.2 Agriculture

This section first considers natural constraints to expanding agricultural production (such as poor land quality, limited water supplies, and degraded forests), before turning to human resource constraints (well-being, skills, and labor cost), and then policy constraints (inputs, and data constraints).

Oecusse's Natural Resource Endowment – Land, Water and Forest

Land resources

Oecusse's land resources are already under significant strain and current practices are not sustainable. For full details on the variety of land systems in Oecusse see Volume II Chapter 4. Table 1.6 summarizes the existing land use situation in Oecusse.

Table 1.6: Oecusse's Land Resources

Total area (km ² and ha)	814 km ²	81,400	%
Area classified as forest (30% of district) a/		24,420	30.0
<i>Of which 50% is degraded forest (ha)</i>	12,210		15.0
Potential maize production area (ha) b/		12,500	15.4
Potential irrigated paddy production area (ha) b/		5,700	7.0
<i>Total area suitable for arable agriculture (ha)</i>	18,200		22.4
Capital of Pante Macassar (ha) (est)		2,000	2.5
Other small towns (ha) (est)		1,000	1.2
Rivers and streams - excluding irrigated area (est)		2,000	2.5
Balance (ha) - swidden farming land, free grazing, eroded hills, etc.		33,780	41.5

Source: derived from various maps, and MAF's official crop areas, and estimates by the World Bank team.

a/ As surveyed by MAF in 2012 and reported in 2013 - with assistance from JICA.

b/ MAF's official crop potential areas.

The total area suitable for permanent irrigated or rain-fed agriculture is only 18,200 hectares, according to the Ministry of Agriculture and Forests (MAF), or 22.4% of the total land area. It is important to note that efforts to increase agricultural production on swidden farming land in West Timor and the rest of Timor-Leste have proven difficult given the fragility of the environment. However, with improved techniques it is possible to sustain higher yields from the existing and 'potential' land areas listed in Table 1.6.

An additional challenge is that all agricultural land in Oecusse is unofficially held by farmers under custodial laws and regulations. This means that even if local communities are amenable to commercial investment in longer-term forestry, there is no legal basis on which land can be leased or rented for this purpose. This situation is undoubtedly a constraint to agriculture sector investment on a broader and more commercial scale. This is likely to mean that at least in the short-term, investment will be based on small family-owned farms of about one hectare, and that investors are likely to be local farming communities and their members. This situation is will probably continue unless an equitable legal basis for land can be identified for the nation, and more specifically for Oecusse.

The main impact of this land ownership situation is that agriculture production in Oecusse is widely scattered (with the exception of irrigated paddy) across diverse farming systems. This situation is not conducive to efficient collection and aggregation of marketable surpluses, and results in high freight costs and transit losses. There is an argument in support of some form of product zoning to address this constraint but poor and subsistence farmers are not attracted to such "formal" industry structures - and they address risk and adversity by growing a diverse range of crop and livestock products.

Water resources

A lack of dry season rainfall means that limited water resources are a major challenge to expanded agriculture production in Oecusse. Oecusse's annual rainfall, its rainfall pattern, and monthly temperatures are shown in Table 1.7. The rainfall figures in red in Table 1.7 illustrate just how dry Oecusse can be even though its climate is classified as tropical. A more accurate classification would be sub-tropical as the maximum temperatures during the wet season are sufficiently high to cause plant stress during the growing season if rainfall is low or intermittent.

Table 1.7: Oecusse's rainfall and temperature patterns

Month	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
mm rainfall	260	214	150	57	37	18	17	7	1	12	48	167
°C (min)	24.7	23.8	23.4	23.1	22.9	22.0	20.8	20.5	20.9	22.6	24.8	25.1
°C (max)	29.9	29.4	29.9	30.7	30.9	30.4	29.8	29.6	29.6	30.0	30.7	30.3

Source: FAO

Water resources generated by rainfall are supplemented in some areas with irrigation, but refurbishing/expanding current schemes and building new ones, is expensive. Oecusse has two main river systems with sufficient water flows for irrigated agriculture: (i) Tono in the north east near Pante Macassar which irrigates about 1,700 ha; and (ii) Natuka along the western boundary with Indonesia (about 200 ha). The current area irrigated is estimated to be about 2,140 ha⁹, out of a former MAF-defined potential area for irrigation of 5,700 ha. This ZEESM situation review estimates a slightly smaller potentially irrigable area of 4,120 ha.

The Tono scheme is about to be rehabilitated at a cost of \$10 million (funded by Government). This work is *not* expected to increase the area irrigated. However, by providing more, and more reliable water, the refurbished scheme should impact on cropping intensities, crop diversification, and crop yields. The Natuka scheme is functional but needs maintenance work on the intake system. Once these schemes are functioning at design capacity it should be possible to substantially increase paddy production as long as supporting reforms are completed to support farmer skills and markets; and additional and supplementary irrigation water is supplied with tube-wells and small pumps.

Bringing the additional potential area (approximately 1,980 ha) of paddy land into production could cost about \$12,000 per ha, which means that production would be uneconomic¹⁰. A full explanation of why increased irrigation for paddy production is uneconomic is provided in Volume II Chapter 4.

Forest resources

As outlined above (Table 1.6), Oecusse's forest resources are under severe stress, with 50% of the forested area degraded through over-harvesting for timber and fuel wood (and little re-planting) and uncontrolled grazing by ruminants. This resource has very limited remaining potential which might be expressed through a managed forest harvesting program. In fact the only development option for this class of

⁹ Source: MAF survey of Oecusse's Operational Irrigation Systems, November, 2014

¹⁰ See: Ministry of Finance and the World Bank, Public Expenditure Review of Investment in Infrastructure, (internal report), 2014; and Volume II Chapter 4 for additional comments in irrigation economics in Oecusse.

natural resource is large-scale re-forestation using mixed hardwood timber and agro-forestry species. This is likely to require substantial private and public sector investment, and participation by communal land owners.

Human resources - poverty, skills and labor costs

This section assesses constraints related to Oecusse's rural households and its farming community. It covers three areas: rural poverty and nutrition, farming skills and techniques, and the cost of labor.

Rural poverty and nutrition

The serious poverty of many households in Timor-Leste and the associated challenges of nutrition and in particular malnutrition meant that rapid changes in agricultural production will be challenging and difficult.

In 2007 Oecusse had the fifth worst poverty figure in Timor-Leste and this is not likely to have improved as much as it may have nationwide. Given the post 2007 development focus on the rest of Timor-Leste and that Oecusse has not received the same level of support as the mainland districts, it is unlikely that poverty in Oecusse has improved in line with the rest of the nation.

Similarly, malnutrition in Oecusse is severe by national standards. In 2009, 68% of children in Oecusse were stunted, with Oecusse the fourth worst district in the country. In 2013 still 58% of children were stunted and Oecusse had fallen further behind other districts to be the third worst in the country. Oecusse ranks worst of all districts in terms of underweight children with 63% underweight in 2009, and 50% underweight in 2013. Finally, Oecusse also ranks last in terms of 'wasted' children with 27% wasted in 2009, and 20% wasted in 2013. Therefore Oecusse's development plan should include a strong focus on human nutrition, with increased production of nutritious foods a priority. Furthermore, without a healthy population it will be extremely difficult to generate rapid output growth in any sector.

Farming skills and techniques

A major constraint to increased agriculture production is a lack of knowledge of modern production techniques, and the technical capacity to use these techniques. The majority of farmers in Oecusse use traditional farming methods, hence there is considerable room for improvement in terms of yields and product quality. In particular, slash and burn agriculture (swidden) is still the norm for non-irrigated areas. This results in significant soil erosion and fertility decline. Selective use of terracing and conservation agriculture techniques (as proven in the Raumoco watershed in Lautem, and elsewhere by FAO) are examples of improved agriculture production techniques which would increase productivity and protect Oecusse's fragile agriculture environment.

Labor costs

Labor is a major input into agricultural production. For example one ha of improved irrigated paddy requires 244 person days of labor for all production activities. The equivalent figure for 1 hectare of intensive vegetable production is 329 person days, or more than one person year. Volume II Chapter 4 provides more details on agricultural labor constraints.

With such intensive use of agriculture labor, the price of labor is a critical determinant of competitiveness. Most farms in Oecusse use family labor where the opportunity cost is relatively low.

However, more intensive agricultural operations, such as irrigated paddy production, pay for casual labor - in cash or in kind.

The average wage in Timor-Leste is \$530 per month and this includes a bonus payment for a thirteenth month¹¹. The minimum wage in Timor-Leste is set at \$115 per month across the country. Oecusse is therefore required to abide by the same minimum wage laws. Today, some companies do not pay this wage rate. However, any major investor at the scale aimed for by ZEESM will be unable to avoid the law in the same way. In short, all companies or farms operating in Oecusse will have to pay at least \$115 per month (13 times per year) and the competitive wage may be higher still.

As of 2009 this minimum wage was 207% of GDP¹² per capita. This is far higher relative to GDP than in Indonesia, where the minimum wage for East Java is 25% of GDP per capita; and in Malaysia, Cambodia and Vietnam where the minimum wage is approximately 34% of GDP per capita for workers for which there is a set minimum wage. Today the minimum wage in West-Timor, the most obvious direct competitor for investment, is approximately \$98 per month at today's exchange rate. This is paid 12 times per year. This is substantially less in absolute and relative terms than in Timor-Leste.

Productivity in Timor-Leste does not justify such high wages, where notably in Oecusse, 52% of the working age population has not attended school.¹³

Agricultural policy, inputs, and services

This section highlights the challenges to Oecusse's agriculture sector relating to the broader context and public support, or lack thereof.

Inputs

The Ministry of Agriculture and Fisheries is in theory responsible for providing free production inputs to all farmers in Timor-Leste. However its current national budget situation (an annual operating and salaries budget of only about \$27 million¹⁴) means it is incapable of fulfilling this mandate. This is particularly the case for the provision of 100% subsidized fertilizer, which at a cost of \$450/Mt CIF means that the Agriculture Administration in Oecusse could only supply 56 Mt per year¹⁵ if 25% of its annual goods and services budget were allocated to fertilizer.

Until recently a lack of access to high yielding crop varieties was a major constraint to increased agriculture production in Oecusse. However Seeds of Life (SoL)¹⁶ has established a national seed system which now services the whole of Timor-Leste. Therefore, **there is no reason why Oecusse cannot access improved varieties of all main food crops (rice, maize, cassava, sweet potato and peanut).** The Agriculture Administration needs to organize the importation of seed and planting materials into Oecusse, and to then distribute these improved varieties. In addition, SoL will assist Oecusse to overcome Rice Tungro Bacilliform

¹¹ Timor-Leste Labor Force Survey, 2010

¹² Non-oil GDP

¹³ Timor-Leste Census 2010.

¹⁴ And supporting donors are not prepared to pay for subsidized fertilizer.

¹⁵ Sufficient for about 285 ha at an application rate of 200 kg/ha, when there are about 7,000 ha of annual crop grown each year in Oecusse.

¹⁶ An Australian (DFAT) agriculture support program.

Virus (RTBV) which causes stunted growth in the preferred mamramo rice variety¹⁷, by assisting with the importation of clean seed from Maliana in 2015.

The essential input which is in very short supply, and which is not provided by the Agriculture Administration, is inorganic fertilizer (N, P and K) for rice and maize production - the latter on the more fertile alluvial plains. Crop yields in Oecusse will remain well below international levels unless inorganic fertilizer is used on a commercial basis. The application of small tonnages (about 1 Mt/ha for paddy) of compost will make very little difference. Large scale organic crop production is not economically viable, mainly because adequate organic fertilizer is not available. However if a “political” decision is made to declare Oecusse an “Organic Zone”, such an outcome will condemn the Zone to low crop production forever¹⁸.

In summary, Oecusse’s Agriculture Administration’s current budget situation only allows the Ministry to purchase and distribute a very small fraction of the crop production inputs needed if the full demand was to be met.

On farm storage

Oecusse should use available practices to protect staples from post-harvest losses. A lack of effective grain storage options often results in significant losses, particularly for maize. An International Fund for Agriculture Development (IFAD) funded study completed by the University of Timor Lorosae (UNTL) in 2013 and 2104 found that 30% of maize production is lost in storage due to weevils and rats¹⁹. IFAD has supported the provision of airtight 200 liter fuel drums to households in targeted eastern districts and these reduce annual maize losses down to about 5%. To-date there are very few of these drums in Oecusse but there is no reason why ZEESM could not fund an Oecusse-specific Maize Storage Project.

Roaming livestock

All types of livestock are allowed to graze freely in Oecusse. This practice causes major damage to crops (and regenerating forests, and planted seedlings) and is frequently cited as a significant problem by farmers. Culturally, there is a view in Oecusse that fences and other barriers should not be required. Additionally, existing efforts to construct fences around large gardens have resulted in accelerated deforestation.

An alternative approach therefore should be to shift towards zero-grazing systems in which cattle/buffalo and goats/sheep are tethered and provided with basic shelter and water, and fed using cut-and-carry agro-forestry fodder management systems. This would substantially reduce the need for fencing and reduce the damage caused by free roaming ruminants. Such changes have been implemented successfully in other districts of Timor-Leste. More detail on how to change this situation in Oecusse is provided in Chapter 2, section 2.2.2.

¹⁷ Which sells for about \$1,000/Mt in Pante Macassar.

¹⁸ Note: if the correct application of compost per ha (10 Mt/ha) was applied across all farming land in Oecusse, there would be an annual requirement for about 70,000 Mt of compost. And the use of animal manure in compost is impossible as ruminants are free-grazing. Therefore from an agronomic point of view it makes no sense to consider declaring Oecusse as an “Organic Zone”.

¹⁹ This research was completed as part of the Timor-Leste Maize Storage Project (TLMSP), which is funded by IFAD and the Government of Timor-Leste (through MAF).

Extension services

Publicly provided extension services in Oecusse are under-financed and inadequate. The Agriculture Administration's Oecusse office currently employs 117 permanent and 20 temporary public servants. The majority are not technically qualified; 65% are only secondary school graduates. This level of staff resources is more than adequate to service about 10,000 rural households, but MAF's 2014 budget for Oecusse (before the independent Zone was announced) was only \$363,000, with 72% allocated to wages - leaving only 28% or about \$100,000 for sectoral development work. This is only \$10 per rural household. While this budget figure is for the "pre-ZEESM" situation it is a reflection of how little public sector investment there currently is in Oecusse's agriculture sector. In addition, once the Tono irrigation scheme has been upgraded, its annual maintenance and operational budget is likely to be about \$250,000, placing a further burden on the already limited MAF budget.

Lack of reliable planning data

Oecusse (and all of Timor-Leste) suffers from a lack of reliable agriculture statistics and planning information. The foregoing comments on areas of agriculture potential for Oecusse' major crops are good examples. In the short-term, and until an agriculture census is conducted, little can be done to counter this major issue, other than to work from first principles and base production estimates on family labor profiles and the constraints associated with this resource which determine cropped areas. Alternatively, and in the interest of an efficient ZEESM planning process for Oecusse's agriculture sector, it may be logical to conduct an Oecusse-specific agriculture census.

1.4 Oecusse's current trade

This section will consider both trade in goods and services and movement of labor (migration). It will first focus on trade in goods and services to West Timor through both formal and informal channels, second on trade in goods and services with Dili, and third on migration flows and remittances.

1.4.1 Formal trade with West Timor

There are few formal statistics for trade between Oecusse and West Timor but it is clear from interviews there is some trade both legally and illegally. The majority of trade into Oecusse is conducted by dedicated importers who bring materials from West Timor. According to interviews with importers, approximately 75% of all the goods (in terms of value) brought in to Oecusse come from Indonesia compared to 25% from mainland Timor-Leste. Construction materials and packaged consumer goods in particular come from Indonesia whilst food products more commonly come from Timor-Leste although many are imports themselves.

Goods imported from Indonesia are more expensive than they would be in West Timor due to transport, freight and duties. Oecusse's private sector retailers estimate they pay 15% more than they would to purchase the product wholesale in Kupang. Importers also confirm they add a 15% margin to most goods compared to their wholesale value. End consumers will be charged slightly more once the local retailer

adds a margin. In general this 15% is to offset a combination of transport costs, a flat import duty of 2.5%, sales tax of 2.5% and, for ten goods, additional excise tariffs.²⁰

There are seven importers operating today from West Timor to Oecusse with an estimated combined import value ranging between \$840,000 and \$2.5m per month. All seven importers source their products in Kupang rather than other nearby Indonesian towns. According to one of these importers, most importers operate two to three trucks two to three times per month from Kupang to Oecusse. Each truck has a capacity of 24 tones and carries goods worth approximately \$30,000 to \$40,000. This suggests that, across all the importers, there is between 672 and 1512 tons imported into Oecusse each month. This is equivalent to between \$840,000 and \$2,500,000 imported per month from West Timor.

According to the importers themselves, most of these trucks return to Kupang City with no cargo highlighting that there is little production in Oecusse. Even with close to zero marginal cost to export, nothing is being exported. This also strongly suggests that the binding constraint to exports is not infrastructure in Oecusse but instead production capacity. Building infrastructure without major investments in agriculture production and human capacity is unlikely to provide sustainable growth to the district.

Border markets

To facilitate trade, authorities in Oecusse set up four border markets for Oecusse locals to sell traditional products to West Timor. However, today only one remains as people cross legally to trade in Indonesia. This is at Oesilo and occurs on the last Friday of the month. In theory it is solely to sell traditional products but there are sales of non-traditional exports as well. Overall volumes traded, however, are small. The demise of the other three markets was due to i) the market sites never being constructed and ii) increased mobility of Oecusse residents into West Timor under the border pass scheme detailed further in the migration section below.

1.4.2 Illegal trade with West Timor

There is some illegal trade with West Timor, notably in fuel imports and cattle exports. Oecusse MAF representatives estimate that in each of the months of July, August and September approximately 20 cattle are illegally sold in West Timor within approximately 10 per month the rest of the year. This is a total of about 150 cattle per year which is small compared to the 16,562 cows recorded in Oecusse in the 2010 census. Nevertheless, it is nearly double legal sales which to Dili and West Timor combined are only 80 per year according to interviews with MAF in Oecusse.

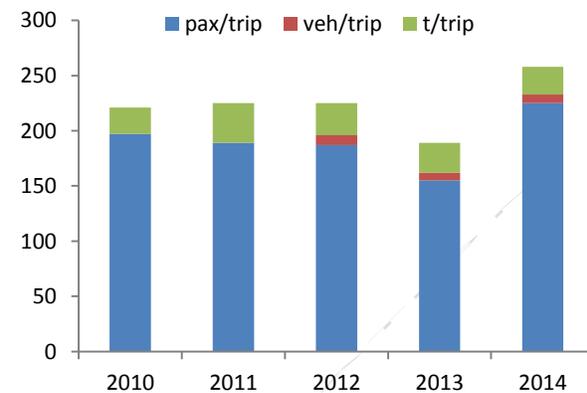
²⁰ The ten goods subject to additional excise tax are: beer, wine, other alcohols, gasoline, tobacco, cigarette lighters, smoking pipes, arms, motor cars, and boats and aircraft

1.4.3 Trade with ‘mainland’ Timor-Leste

There is significant trade with Dili via the ferry and, to a lesser extent, overland since this involves multiple trade costs. Overland transport currently implies the costs associated with importing into Indonesia and then exporting to Timor-Leste resulting in double charges on tariffs as well as significant time delays. For this reason, the majority of trade with Dili is via the ferry. According to operators, the current ferry service the Berlin Nakroma which travels twice a week is fully booked many months of the year.

Passenger data shows the average number of passengers per trip over the year has increased from 197 in 2010 to 224 in 2014. The Berlin Nakroma has a nominal capacity of 300 passengers. In August 2014 the average number of passengers was 289. The Berlin Nakroma in 2014 averaged 8 vehicles per trip and cargo of 24.8 tons per trip. Observation of cargo loading and unloading shows livestock and crops are regularly transported on this boat to sell in Dili.

Figure 1.9: Berlin Nakroma passenger and cargo figures



Source: Port authority

1.4.4 Migration within Timor-Leste (internal), with Indonesia (international), and remittances

Overall internal migration is low because of Oecusse’s isolation. The latest census indicates that internal migration both to and from Oecusse from the rest of Timor-Leste is very low. Oecusse has a net internal migration rate of -5.85. Like other rural areas in Timor-Leste, there are more people leaving than arriving in Oecusse, but relatively fewer leaving Oecusse than most other districts. In Oecusse, 83% of out-migration is to Dili, which is common for most districts. Dili is the only district showing a positive net migration rate (37.27) which reflects a strong trend of migration to the capital. The net migration rate captures the net effect of in-migration and out-migration on an area’s population, expressed as an increase or decrease per 1000 people for the given area per year. Oecusse’s low levels of both in and out migration reflect its geographical isolation from the rest of Timor-Leste. The twice weekly ferry costs \$40 one way which is beyond the reach of most Oecusse residents.

International migration is more significant. Approximately 1.5% (960) Oecusse citizens are classified as living abroad. Oecusse also hosts 779 international migrants – 4.83% of the total immigrants in Timor-Leste. In Oecusse’s case, although there is no data, it is plausible that Indonesians from NTT will be a large part of the immigrant body.

Both permanent and temporary migration to NTT is further facilitated by the district specific Border Crossing Pass system. This scheme governed under Resolution 21/2009 of the National Parliament of Timor-Leste allows all Oecusse residents to receive a border pass to travel within a 25km radius in Indonesia of the border posts for traditional or customary practices as well as some regulated business activities for up to 10 days. This system was created in order to regulate and facilitate existing irregular migration practices and to maintain kinship ties. The pass lasts for one year and must be applied for at the Ministry of Justice in

Oecusse. The pass is free, requires photo and residence identification to receive, and takes one week to process, according to interviews. These border passes allow Oecusse residents to trade with nearby markets in Indonesia.

While formal remittance data is scarce, estimates suggest that remittances play a more limited role in Oecusse than Timor-Leste's economy as a whole.²¹ In Oecusse the limited available evidence suggests that remittances play a more minor role in household income. A 2007 study found that “remittance was not common among households surveyed” with 7% (of an N=21 study) reporting receiving remittances, mainly under \$50.²² This is substantially lower than remittances values nationally which suggests migrants from Oecusse are engaged primarily in low-skill and low-wage labor and are unable to remit large amounts.

1.5 Barriers to the expansion of trade

This section highlights three major issues that hinder trade to and from Oecusse. First, delays and costs from trade infrastructure and general procedures to trade with both NTT, Dili and the broader region. Second, barriers to trade with NTT in the cattle sector from specific food and health standards. Third, the lack of nearby major shipping lines and trade flows that could be tapped into.

In terms of increasing exports, trade constraints appear less significant than production constraints. Given that there are empty trucks travelling to Kupang every week, policy efforts should aim to increase competitive production in Oecusse of goods for which there are markets in West Timor, before focusing too much on trade infrastructure. Nevertheless, improvements to trade infrastructure and procedures could be an important step to allowing consumers and investors in Oecusse to operate at lower cost.

1.5.1 Barriers from trade infrastructure and border procedures

Oecusse traders report sourcing from Dili and various Indonesian sources including Atambua, Wini and Kupang. Table 1.8 summarizes transport costs for various sources of goods for Oecusse.

²¹ The G-to-G labor migration program between Timor-Leste and South Korea is reporting bi-annual remittance figures of \$2.6 million, while Western Union has reported quarterly remittance figures as much as \$1.2 million. For more information see <http://sefoppe.blogspot.com/2014/03/sefoppe-sending-people-overseas.html>, accessed 24.10.14

²² Oxfam Australia, Timor-Leste Food Security Baseline Survey Report, Australia: 2007, p.5

Table 1.8: Transport costs to Oecusse

Origin of Goods	Kupang	Atambua	Wini	Dili by Truck	Dili by Ferry	Note
Time to receive after ordering	3 days	3 days	1-2 day	4 days	Depends on Ferry schedule	
Costs of delivery	USD 500	USD 230	USD 154	USD 750	USD 250-1000	Transport Cost is \$0.25 per box or \$0.5-1 per sack of rice
Cost of labor (unloading)	USD 70	USD 70	USD 70	USD 70	USD 70	For 5-7 laborers
Type of goods	Construction Materials, Rice, Food Products	Construction Materials, Rice, Food Products	Construction Materials, Rice, Food Products	Rice, Food Products	Rice, Food Products	
Tonnage	25 tons	25 tons	25 tons	25 tons	25 tons (1000 sacks)	Depends on space in the ferry
Distance	300 km	90 km	25 km	208 km		
Average time	7.5 hrs	1.5 hrs	1 hr	10 hrs	13 hours	
Transport Cost per km	USD 1.7	USD 2.6	USD 6.2	USD 3.6		
Security issue	No	No	No	No	No	No
VAT/Sales Tax applies	10%	10%	10%	2.5%	2.5%	

Source: World Bank staff own survey

Trade with Dili

Trade with the rest of Timor-Leste is made particularly challenging by Oecusse's isolation. The twice weekly return ferry connecting Pante Makassar in Oecusse with Dili in Timor-Leste takes 13 hours. As highlighted above, the ferry operator reports the ferry is close to fully booked for some months of the year and that considerable livestock and merchandise is transported this way in both directions. The limited ferry capacity represents a barrier to trade with Dili although it is not clear that capacity, rather than price, is the major barrier. The ferry is frequently close to capacity but there is some fluctuation. The impact of the \$40 one way price on trade should be subject to further study. Nevertheless, if the price is reduced, demand will increase and greater capacity will likely be needed.

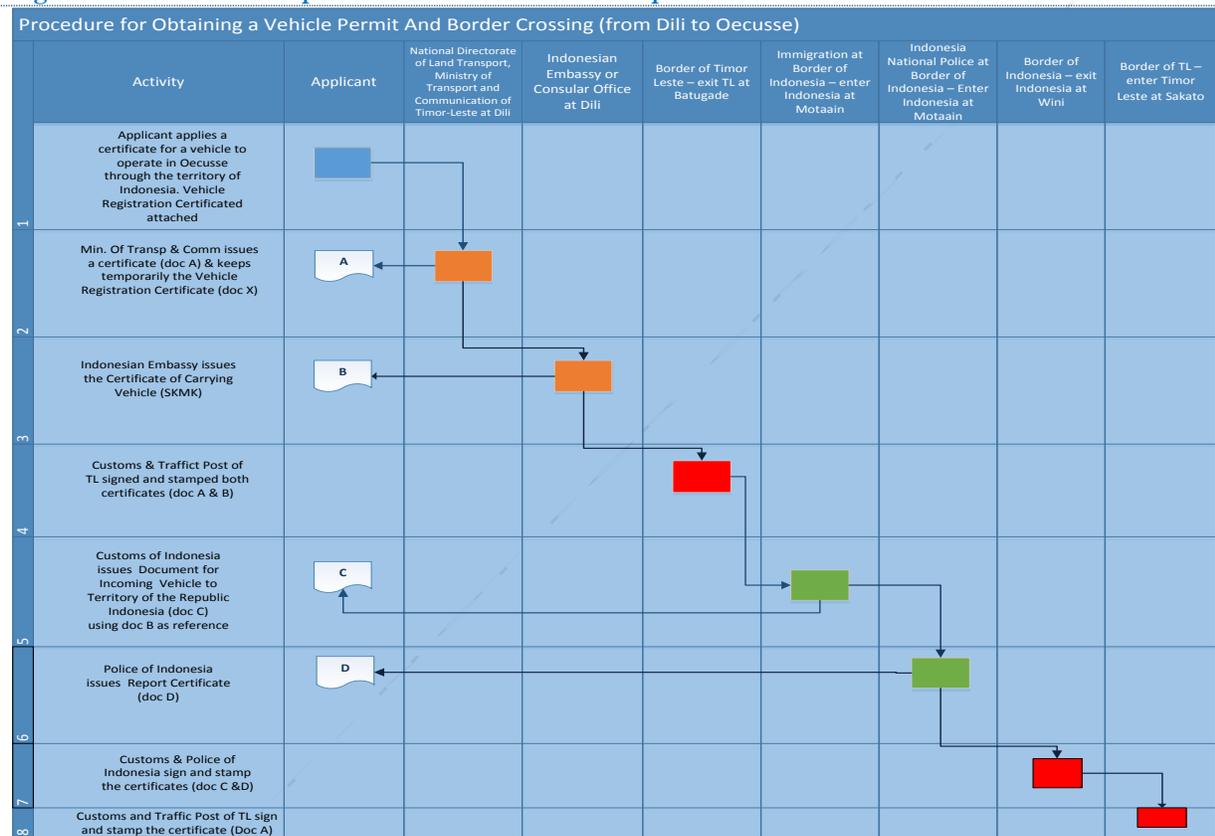
Increasing the regularity of the ferry or upgrading its size will be discussed in Chapter 2 Section 3. However, it is important to note that to meet today's demand for transportation of goods and even estimates of future demand for transportation need not involve a major upgrade of the existing port facilities.

Transport overland from Oecusse to Dili is challenging. Volume II Chapter 5 provides a detailed explanation of the process for shipping overland from Oecusse to Timor-Leste via both coastal and inland routes using Napan on the Indonesian side. Total travel time is between seven and ten hours depending on border procedures. However, in order to travel these route visas are required in advance, even for Timor-Leste citizens. This generally takes a three day lead time, costs \$45 and requires the provision of passport

photos, demonstration of funds and plans, and completed forms. In addition, the vehicle being used for transportation requires a vehicle permit. This requires a payment of a further \$20 and four additional documents as well leaving the vehicles Timor-Leste registration with the Ministry of Transport in Dili which can only be retrieved on return.

Procedures at the borders are relatively slow (see Volume II Chapter 5 for a full break down.) This is in part because on the Indonesian side documentation must be presented to four institutions: customs, military, immigration and police. In addition, practical experience and interviews suggest that it is common to be asked to make further illegal payments. Notably, however, physical inspection of cargo is not required for transit cargo travelling from Dili to Oecusse via NTT.

Figure 1.10: Flowchart for procedures to Obtain a vehicle permit for travel to Oecusse



Source: World Bank staff own survey

Oecusse’s traders consider Indonesian goods from Dili to be lower in price than sourcing directly from Indonesia, as tax and transit advantages from Dili may offset the lower transport costs from Indonesia. For example, comparing goods originating in Kupang and arriving directly in Oecusse, to goods from Kupang arriving via Dili, shows that the cost per km for goods from Dili is almost twice the cost of those from Kupang. It takes on average 3 days to bring goods by land from Kupang, which is less than the 4 days it takes from Dili. However, traders in Oecusse (notably traders in construction materials) reported a lower price of goods from Dili, than from any location in West Timor, NTT (Atambua, Kupang, etc.). Two factors may help to explain this.

Dili based importers are sourcing goods directly from *producers*, avoiding 10% Indonesian VAT, whereas Oecusse based importers are sourcing from Indonesian *wholesalers*, in Surabaya for instance. Goods imported from Indonesia to Dili are more likely to be sourced directly from producers not from wholesalers. This saves both on the wholesaler's markup, and the 10% Indonesian value added tax, since Indonesian producers are exempt from 10% value added tax when they export directly to Timor-Leste. On the other hand, goods from Kupang for example, are coming from traders in Kupang – not the original Indonesian producers – and are therefore subjected to 10% value added tax.

Furthermore, goods travelling through Indonesia from Dili face no disadvantage in terms of export/import clearance costs, in relation to goods imported from Kupang. The cargo from Dili is considered as transiting Indonesian territory, in Timor-Leste Customs Code No 11 of 2004²³.

Trade with NTT overland

The system of border passes has helped to ease trade with NTT for residents of Oecusse but goods are subject to significant barriers at land borders. Traders supplying Oecusse from the NTT side report significant delays in their activities which vary depending on their routes, cargo, and point of entry.

International trade via the port in Pante Macassar

There is currently no international trade from Oecusse via the port as Pante Makassar is not a registered international port. Furthermore, it is unable to take large boats as the port has a limited draft. However, even if it were able to export and import, time and costs are likely to be a problem. Transport costs are a notable problem for Timor-Leste in general. While improving, the cost and time to import and export are substantially higher than regional competitors. The time to export for Timor-Leste is 28 days compared to just 17 in Indonesia and 21 in Vietnam.²⁴ This is for exports primarily from Dili. The cost to export is \$750 for Timor-Leste compared with \$610 for Vietnam and \$615 for Indonesia. For imports, Timor-Leste costs \$755 compared to \$600 for Vietnam and \$660 for Indonesia. Substantial changes would need to be made for Pante Macassar port to avoid similar problems to those seen in Dili.

1.5.2 Constraints to live cattle trade

There are trade-related health problems with live cattle exports, which if resolved, might result in increased exports. Firstly, Oecusse's current illegal trade of cattle into West Timor could be formalized and expanded, but there are two barriers to formal cattle trading with West Timor. The first is meeting Sanitary and Phytosanitary Standards (SPS) given the history of bovine brucellosis (*Brucella Abortus*) in cattle in Timor-Leste. Indonesia currently blocks the export of cattle to West Timor on the basis that the veterinary certificates provided by (the former) MAF Quarantine services in Oecusse do not meet Indonesia's SPS standards. There is an active collaboration program with Bogor Agricultural University in Indonesia attempting to resolve this issue of certification. This should also be an urgent priority for ZEESM. Once the

²³ Article 112, point 1, Timor-Leste customs code 2004: The internal transit procedure shall allow the movement of national goods from one point to another point of the national customs territory, passing through the territory of a third country, without changing their customs status.

Article 112, point 2: The external transit procedure shall allow movement of foreign goods between two points of the national customs territory without such goods being subject to import duties and other charges or to commercial policy measures.

²⁴ World Development Indicators, 2013

question of certification has been resolved, significant improvements to existing vaccination campaigns would be required to ensure that cattle are verifiably vaccinated, and therefore eligible for trade into West Timor.

However the Agriculture Administration currently lacks the resource and capacity to vaccinate about 16,000 cattle (all females and sexually-mature males) every year, and then test to confirm (using fresh blood samples) initial decline, and then eradication of brucellosis from Oecusse. At present Oecusse's Agriculture Administration only has one operational vehicle and does not have the trained veterinary staff, or the specialist equipment required, to run a Zone-wide bovine disease eradication program.

Lessons on how to eradicate a disease such as brucellosis should be heeded (such as Australia's BTEC Program which cost millions and took 10 years) before, firstly making the investment required, and then implementing a Zone-wide program. This is because potential incremental annual sales of beef might be valued at only about \$1.0 million (see Table 1.3 in section 2), and a prolonged brucellosis eradication program would be very expensive and not necessarily successful.

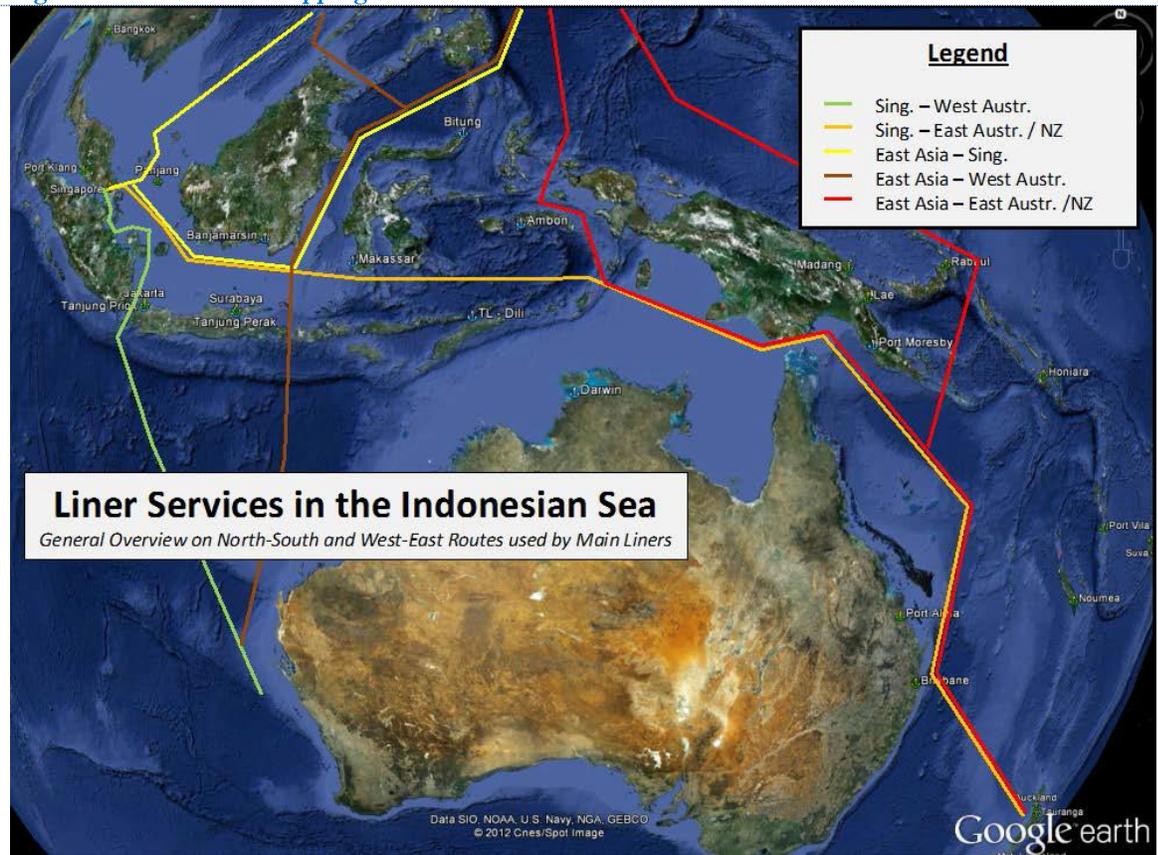
The second constraint is that cattle are traditionally used as a form of savings in Oecusse. This reduces the desire to sell cattle as part of general commercial trade. This constraint could be slowly addressed through further provision of effective savings tools such as Rotating Savings and Loan Organizations and formal bank accounts. If these two issues can be addressed there is some potential for live cattle exports. However, while replacement of imported beef may be possible, Oecusse is unlikely to be competitive in the international processed and packaged beef markets (see Table 3.10 and Table 3.11 in Volume II Chapter 3).

1.5.3 The challenge of accessing regional trade flows

Main Line shipping

Oecusse is not directly on any Main Line shipping routes (Figure 1.11), limiting the chance of operating as a logistics hub or taking advantage of major global shipping flows even if major port infrastructure investments were made. Main Liners would have to not just add an extra stop on an existing route but fundamentally change their route in order to stop at Oecusse.

Figure 1.11: Main Line Shipping Routes



Source: Google Earth

Regional shipping

Ideally, Oecusse would be able to take advantage of shipping lines passing by that go directly on to major destinations like Jakarta or Surabaya. Without this, exports from Oecusse will either suffer from an added cost of a stop in Kupang or Dili before being transferred on or would need to be of significant volume and value to attract direct shipping from the region to Oecusse alone. This second option appears relatively unlikely given the potential volume of goods that is likely to be produced in Oecusse in the short-medium term. This is detailed further in Box 2.1.

Unfortunately, very few regional services from other parts of the Indonesian sea pass near by Oecusse as outlined in Figure 1.12. Boats from Dili take alternate routes to Darwin and Surabaya respectively and boats to Kupang go directly to Surabaya without passing Oecusse.

Figure 1.12: Regional Shipping Routes



Source: Google Earth

The Port of Tenau at Kupang operates as a hub port for Nusa Tenggara Timur with goods then shipped or trucked onto other destinations in West Timor or East Nusa Tenggara Timur from there. This severely limits the number of direct services from and to other regional ports near to Oecusse.

There are two ports near Oecusse on the north coast of West Timor; Wini and Atapupu. Both of these have container capacity but according to the Publication of Indonesia Transport Statistics in 2012 are small non-commercial ports. Atapupu in 2012 received 618 ship calls making it only the 8th largest non-commercial port in Nusa Tenggara Timur.²⁵ All of these ship calls were domestic voyages. Atapupu Port's capacity is relatively small at 2000 DWT.²⁶ There is also a limited ferry service to Kalabahi which had embarkation and disembarkation of approximately 1500 people each in 2012. This is the second smallest out of 16 of the ferry services in Nusa Tenggara Timur.²⁷ In terms of routes, there is a link to Surabaya which could be further investigated to potentially stop at Oecusse to directly take produce to regional export markets. However, given the scale and non-commercial nature of the Atapupu Port and the limited activity and volume, it is likely to be extremely challenging for Oecusse to tap into this.

²⁵ Indonesian Publication of Trade Statistics 2012

²⁶ Indonesia National Ports Master Plan

²⁷ Indonesian Publication of Trade Statistics 2012

The second port nearby is Wini. This is even smaller with total ship calls in 2012 of 117, four of which were international.²⁸ Wini is also a non-commercial port and primarily serves to export Manganese from West Timor.

If it is indeed not viable to tap into the Atapupu to Surabaya shipping route this leaves Oecusse with two options. Firstly, it could construct a significantly enlarged port with capacity to take ships of the size of at least those plying regional routes, 2700 Twenty Foot Equivalent Units (TEUs), and aim to attract shipping lines to serve Oecusse directly. As a point of comparison the current Dili port can only take ships with approximately 500 TEU.²⁹ The planned port at Tibar aims to have capacity to handle vessels of up to 7000 TEUs and a DWT of 90,000. Kupang Port currently takes ships with up to a DWT of 10,000.³⁰

Constructing a port of this scale is likely to be costly and its viability critically depends on whether Oecusse can give shipping companies a reason – in terms of goods to pick up or drop off – to start a line to Oecusse. As outlined in Chapter 2, Section 2, it is difficult to envisage Oecusse producing at that scale in the foreseeable future. Alternatively, a smaller and less costly upgrade to the port could allow for more regular shipment direct to Tibar or Kupang before being shipped on for international export. Without dramatic increases in the volume of goods produced or required in Oecusse the latter option may be more cost effective and provide a better chance for Oecusse's goods to be competitive in international markets. A final option would be to truck goods to a port in West Timor for export from there. All these options should be assessed in light of reasonable production, export and import projections for Oecusse over a suitable time frame.

²⁸ Indonesian Publication of Trade Statistics 2012

²⁹ Tibar Bay Port PPP Investor Conference , IFC 2013

³⁰ Instructions to Bidders Tibar Bay Port PPP Project, 2014

CHAPTER 2: FUTURE POTENTIAL OF OECUSSE

Chapter 2 turns the focus toward a phased approach to the future of Oecusse recognizing that the pre-requisites for a successful SEZ are yet to be met in Oecusse. Phase 1 of Oecusse’s development, which may take up to 10 years, builds on current endowments and constraints to alleviate poverty through employment generating interventions that are also environmentally sensitive and build human capital. Phase 1 interventions are important regardless of whether an SEZ is formalized in Oecusse or not, but can improve the likelihood that a SEZ, if put in place, might succeed.

Section 1 considers a rough reference case for the cost of basic infrastructure required to normalize access to education, health, road and electricity services. Section 2 lists the 6 key lessons on what must be ‘got right’ for a zone to succeed in general. Section 3 details how a phase 1 focus on agriculture may help Oecusse succeed in the first of these key lessons; selecting sectors in which the zone is competitive. Section 4 then considers the ZEESMs plan in light of the other key lessons and provides suggestions on how to proceed. Section 5 focuses on social issues, migration and community engagement and how they can be addressed. Section 6 explores how, in a second phase of Oecusse’s development, appropriate governance structures are critical for a successful SEZ’s. The final section provides a summary of the choices facing Oecusse on the path forward.

2.1 Infrastructure costs for full service delivery

It is roughly estimated that a one off incremental capital investment of \$156m, and \$71m more than currently spent every year in O&M, will deliver full basic services in Oecusse, in relation to the current level of service in roads, electricity, health and education. A rough estimate of the incremental one off capital and annual operating and maintenance costs it would require to achieve full service in a range of basic services in Oecusse is presented in Table 2.1. The target levels of service are 90KM of fully paved roads, 100% electrification (from 25% in 2012), WHO benchmarks consistent with achieving the MDGs, and universal student access to primary education. This considers for instance, that Oecusse’s 90KM of roads will be fully paved, 236 new schools are constructed, no new district hospital is required, and the 17MW of recently installed electricity generation capacity is sufficient for Phase 1 of Oecusse’s development (the next 10 years).

Table 2.1: Estimated incremental capital and operating costs to improve access to basic services.

Incremental Cost of full basic services (\$m)	Roads	Electricity/1	Health	Education	Total
One off capital	78.80	68.00	-	9.43	156.23
Annual O&M	6.30	3.40	0.66	60.48	70.85
Total	85.10	71.40	0.66	69.92	227.08

1 Source: WB staff calculations, WB/MOF Infrastructure Public Expenditure Review, Health Medium Term Expenditure Pressure report, ROC version. Electricity capital costs are already incurred.

2.2 Special Economic Zones: Getting the fundamentals right

Special Economic Zones have been used all over the world to try to accelerate growth and job creation in particular. At their best, SEZs have catalyzed growth for broader regions and even entire countries, most famously, in the Shenzhen Zone in China. Yet there are also limitations to what zones can achieve with many of the over 3000 zones worldwide not achieving their desired outcomes for various reasons. In light of this a number of lessons can be identified that should guide the considerations of a zone in Oecusse.

- **Focus on competitive sectors:** To succeed it is critical to establish a clear idea of a few sectors in which the zone is likely to be competitive based on factor costs, input availability, and context. Chapter 1 of this report has laid out the existing context in which Oecusse's strategy needs to be based.
- **Build appropriate infrastructure:** Based on a clear identification of the sectors in which the zone can be competitive, infrastructure can then be constructed that is tailored to the sectors in question.
- **Improve the ease of doing business:** SEZs can be an effective tool to strip away and streamline some of the impediments to doing business in a country. One of the most effective ways of doing this is to establish a one-stop-shop for business registration, licensing, visas for staff etc. Timor-Leste's SERVE is a good example of at the national level.
- **Make the most of location:** Zones tend to perform better when they are located in an area with a clear competitive advantage, access to a skilled labor force, proximity to existing national infrastructure, and access to existing trade flows.
- **Invest in a healthy and educated population:** Successful SEZs require a healthy educated population nearby that is willing and able to work in the SEZ.
- **Using experienced operators and developers:** The split between the state and the private sector in developing and operating the zone should be primarily based on capability.

2.3 Growth sectors in Oecusse: What are they and how can they be supported?

This section seeks to answer the question of sectoral competitiveness identified above, for Oecusse. What sectors hold the most promise? And what specific steps are needed to make the most of these opportunities?

Chapter 1 highlighted that in terms of both labor and transport Oecusse has high factor costs. These do not mean it is impossible to attract investors. However, they do suggest two things. Firstly, that economic development should focus on sectors where the use of the most expensive factors is relatively low. For example, labor intensive manufacturing industries are unlikely to succeed with high labor costs in relation to skills and in relation to competitors. Similarly industries with significant transportation of both inputs and outputs (such as garment production) are unlikely to succeed. Instead, sectors which use the locally available assets (such as agricultural products), which produce light products for nearby markets, and which do not rely on low-wage labor are more likely to succeed. Secondly, that policies for the SEZ focus where possible on improving factor costs – such as time and cost to export –, without engaging in financially unsustainable subsidy regimes.

Potential in Oecusse can be assessed in three broad areas; manufacturing, agriculture and services (including tourism and logistics) and should balance competitiveness with the need to generate employment. In each case particular attention must be paid to the issue of competitiveness and potential

markets. This is because, whilst SEZs can change many things, factor costs and market availability are relatively immutable. Without basic competitiveness and viable markets it will be very challenging – or at a minimum very expensive - for a sector to succeed, even with the support of an SEZ framework. Another concern is the balance to be struck with employment generation. While low use of expensive factors may make business sense, it may limit the growth of employment and poverty reduction, against the spirit of the ‘social market economy’. The critical task is to find the right balance of business sense and employment and poverty reduction.

2.3.1 Manufacturing and mineral production

The outlook for developing manufacturing in Oecusse is challenging for two primary reasons: factor costs and skills.

Oecusse has a relatively low skilled population which restricts its opportunities in manufacturing. According to the 2010 Census only 11% of Oecusse’s total population has completed secondary school and only 3% has a tertiary qualification. In this context, high skilled manufacturing industries are likely to be extremely difficult to attract. Given this level of human capital in Oecusse today the only possibility worth assessing in manufacturing is in relatively low skilled light manufacturing. There are many examples of this such as garment production and footwear production. In these sectors, inputs are primarily imported and processed and then final products exported to external markets.

Many countries and SEZs have based growth on low skilled light manufacturing. However, those that are typically most successful in doing this are normally able to take advantage of very low wage costs. For example, Ethiopia’s success in attracting labor intensive manufacturing from China has been based on its offer of very low wages; \$35-53 per month for unskilled works on average³¹. Vietnam has had similar success in the past, although it is now under some pressure from rising wages, despite its average unskilled wage in manufacturing still only being \$73-131 and its workers having relatively high productivity.

Unfortunately for Oecusse, as highlighted in Chapter 1, the average wage in Timor-Leste for those in employment is already \$503 per month and the binding minimum wage is set at \$115 per month.³² This level of wages already prices Oecusse out of most types of low-skilled manufacturing. It is likely to be extremely challenging to attract investors to manufacture in Oecusse with these wage costs, especially given the relative deficit of skills.

Oecusse also lacks a tradition of manufacturing. The 2012 Business Activity Survey highlights that there is no existing light-manufacturing in Oecusse to build upon. Experience in a particular sector of light manufacturing can be critical to increasing the scale of the sector. One of the reasons why footwear production has begun to shift to Ethiopia in addition to low wages is the long history of leather production in the country which means many people have some relevant experience and basic skills and there is a strong leather supply chain.

Finally, given Oecusse’s very limited ability to produce manufacturing inputs locally, anything other than agro-processing is going to require almost all inputs to be imported. Oecusse’s isolation also

³¹ Light Manufacturing in Africa, World Bank 2012

³² Labor Force Survey 2013

drives up the cost of importing. As described above, Oecusse is not on any major existing shipping lines and the cost to import one twenty foot container in Timor-Leste today is already \$755. This is substantially above Vietnam and Indonesia's costs of \$600 and \$660 respectively. Furthermore, the cost for importing to Oecusse for the foreseeable future, based on interviews with traders, is at least 15% above the Timor-Leste rate.

The conditions for development through mineral production, for instance in the context of the resource corridor hypothesis, are not yet in place in Oecusse. The hypothesis is based on various assumptions, two of which are: (i) that infrastructure development in an economic zone can be leveraged through private financing and (ii) that economic activity spurred by natural resources can lead to economic development and diversification. While the first of the assumptions might hold in the case of Oecusse, it is not clear that manganese processing would be a driver for diversification since downstream processing is limited. In addition, similar enclave economies with extractives potential (such as Greenland) rely heavily on attracting skilled and technical labor, which remains a challenge in Oecusse given very high illiteracy.

While East and West Timor hold a large number of small manganese deposits, currently exploited by artisanal miners, it is recommended that current plans in West-Timor to develop value-adding facilities are carefully studied before manganese potential is pursued in Oecusse. Currently, most of the ore in West Timor is purchased by one corporate group which is shipping ore to China and Korea. It plans to construct a crusher and separation facilities at an estimated capital cost of US\$5 million. There are also plans to construct a smelter at a capital cost of US\$45 million, driven by an Indonesian ban on export of unprocessed ore. However, an operation at this scale is considered small in international comparison. If the planned facilities go ahead, there may be little potential for a second manganese processing facility on the island. Instead, any exploited manganese deposit in Oecusse is most likely to sell ore into West Timor where it would be blended as feed into a smelter for processing and onward export to steel mills. It should be noted that manganese mining is a high-volume bulk commodity which requires somewhat different port and transport facilities than other conventional manufacturing industries.

In light of the challenges of wages and skills in particular, focusing on manufacturing is unlikely to lead to success in Oecusse. As detailed below, the opportunities for growth appear much stronger in other sectors such as agriculture, potentially including some processing.

2.3.2 Agriculture

Agriculture has some advantages over other sectors. First, the sector is currently the only major economic activity in Oecusse. Second, in a quantitative sense land area is not a limiting factor, and the rural population is cohesive and internally supportive. Third, there is room for improvement in a range of areas including use of proven agriculture production techniques, and public support for the agriculture sector. Moreover, many improved technology packages which could be used in Oecusse have been proven successful in similar environments such as in the rest of Timor-Leste and Indonesia. Of course, there are also numerous constraints to agriculture development in Oecusse, as highlighted in Section 1.3.2 in of Chapter 1.

Agriculture has some factor cost advantages in that “rainfall and oxygen are free³³” and land has a very small opportunity cost, but inputs such as labor and fertilizer are expensive. In addition, the sector has good opportunities to build on Oecusse's natural resource base (provided interventions are

³³ Essential inputs for plant growth.

sustainable and environmentally positive). In relative terms the sector it is not as labor intensive as low-skill manufacturing, however, agriculture still has the capacity for major employment generation in Oecusse. The sector will simply generate fewer jobs than an equivalent unit of manufactured value added – but given the high cost of labor (and how this increases costs for manufacturing in Oecusse) it is precisely this fact that means agriculture is a better sectoral target than manufacturing.

Oecusse’s agriculture is critical to the people of Oecusse for four reasons. Oecusse’s agriculture sector will be: (i) the main employer of the Zone’s population for the foreseeable future (irrespective of whether ZEESM proceeds or not); (ii) increasingly responsible for producing sufficient healthy food to avoid the need to import; (iii) (continue to be) responsible for environmental protection and improvement; and (iv) required to be the basis on which the majority of the population experience increased incomes and improved livelihoods.

A Draft Oecusse Agriculture Development Plan (OADP) responds to these four points. This section considers the potential for improvements in Oecusse’s agriculture sector and provides recommendations on how to accelerate development. The section begins with an overview of agricultural land potential; then suggests a strategic approach, outlines initial recommendations, and provides an estimate of the impact of these recommendations. This set of recommendations is referred to as the Oecusse Agricultural Development Plan (OADP). Volume II Chapter 4 includes a more detailed discussion of these key points.

Agricultural potential

Oecusse has some potential for increased use of land for agriculture production. Oecusse has:

- (i) 24,420 ha classified as forests, of which half, or 12,210 ha, are severely degraded and therefore represent a large-scale opportunity for communal and commercial re-forestation programs which would employ large numbers of rural people;
- (ii) 12,500 ha are “officially” suitable for maize production with only about 2,500 ha currently being used;
- (iii) 5,700 ha which are suitable for irrigated agriculture - with only 2,140 ha currently being used, leaving an additional 3,560 ha available for development; and
- (iv) 33,780 ha of swidden farming and free grazing land area, which whilst by far the largest “potential agriculture development area” in Oecusse, is also fraught with difficulties and constraints - and bringing about fundamental changes in current land use practices on this class of land is difficult, and if successful, takes many years - up to a generation.

Forestry and agro-forestry programs are a significant investment opportunities for Oecusse. However, despite this promise, it is critical to be clear about Oecusse’s potential. Whilst significant in the context of the Zone, it is modest by national and global standards. Therefore investments in infrastructure should be commensurate with reasonable forward production estimates, as highlights and as is detailed further below.

A strategic approach to agricultural development

Box 2.1: Why Agriculture Potential Estimates Matter

Shipping Infrastructure should be proportional to production potential

Understanding Oecusse's agriculture potential is the main determinant of the scale of infrastructure that would be appropriate for Oecusse. An example illustrates the importance of estimating potential agriculture production accurately. If the entire area with potential for rice (5,705 ha) was instead used to grow bananas for export, and yields were assumed to be equal to the world average, this area would only generate sufficient volume for *three* 2,700 TEU ships per year. Oecusse may produce other products or provide other reasons for ships to berth in Pante Macassar. However, it is critical that before there is any commitment to a new port that the need for, and relative benefits of, building ports of various sizes are clearly assessed. This is especially true given the possibility of exporting via smaller ships to the new Tibar port where goods could be loaded onto larger ships for international export.

Oecusse's uniqueness in terms of its geographic location, history, and relative isolation in terms of its share of Timor-Leste's national development budget means that the Zone needs to try to fast-track key agriculture development initiatives, and to not simply rely on an expanded "business as usual" approach to sectoral development. In the past, reliance on MAF's extension services has not been very effective, and donors (with the exception of some national NGO's) have tended to "ignore" the enclave, relative to their support for other districts.

To ensure that Oecusse's agricultural development is accelerated, a strategic approach is required based on the following principles.

- (i) A strong focus on rural poverty reduction and nutrition. Poor and under-nourished farmers and their families are often not receptive targets for programs which promote economic development.
- (ii) Leverage-in increased support from Timor-Leste's agriculture sector donors from the planning stage onwards. Engage donors in particular in quick wins such as maize storage drums. Oecusse could be proposed as 'fast-track' district for other Timor-Leste wide donor initiatives.
- (iii) Ensure that all interested farmers have access to all, readily available, improved food and cash crop cultivars from partners such as SoL.
- (iv) Build on current successes (such as Caritas's communal approach to watershed management), and introduce locally-proven technologies such as improved cattle feeding using multi-purpose legumes (as proven by ACIAR in West Timor and Eastern Indonesia.)
- (v) "Leapfrog in" new agriculture production systems and practices; such as the use of barbed wire for fencing using live posts, the use of smothering legumes for weed control in maize crops, and fertilizer micro-dosing for maize production.
- (vi) Foster a "rural communal learning culture" which is supported, as required, by OADP resources and budgets. This could involve a new and innovative approach to agriculture extension based on farmers' demand, rather than an Agriculture Administration-determined, top down approach to planning and implementation.
- (vii) Prepare to build on possible synergies which might develop as ZEESM is implemented, particularly in terms of supplying fresh vegetables and locally-produced livestock products to a growing population.
- (viii) Become a leader in forestry and agro-forestry. Current land use in Oecusse "mandates" that any future sectoral development strategy should include a strong element of forestry and agro-forestry, provided forest-based products are internationally competitive. Such a program would increase rural incomes and employ large numbers of rural people. Given that about 40% of Oecusse's total

land mass is swidden and degraded forests, forestry and agro-forestry programs may be the only way to ensure that this land can “survive and be of use to future generations”.

Forestry and agro-forestry programs are good opportunities for Oecusse to “do something different”.

To-date no district in Timor-Leste has decided to focus on forestry and/or agro-forestry, even though forest products have a strong comparative advantage (high value, storable, exportable, and can be value-added), large areas of land with a zero opportunity cost are available, and astutely planned reforestation programs can employ large numbers of rural people, including rural youth. Furthermore and as shown in Volume II Chapter 4, there are a number of perennial tree cash crops and timber species which have considerable potential to increase farm incomes and generate high returns to family labor inputs.

A possible OADP – selecting approaches and products

Selecting the right mix of products will be critical particularly given Oecusse’s severe competitiveness problems highlighted in Chapter 1. In this light, the key recommendations are to:

- (i) Focus on products which have good potential to create high levels of rural employment, plus if possible, the potential to contribute to improved human nutrition.
- (ii) Focus on import replacement³⁴ products - and rice is the obvious one, with the local mamramo variety selling for about \$1,000/Mt in Pante Macassar.
- (iii) Focus on products which are likely to increase in demand as ZEESM develops, and the domestic and migrant population grows - such as fresh meat, and fresh fruit and vegetables.
- (iv) Select new products which are at least reasonably competitive internationally, and which are complementary in terms of environmental protection - such as a wide range of tree crops including timber and shorter-term tree cash crops.
- (v) Shift towards zero-grazing farming in which cattle/buffalo and goats/sheep are tethered and provided with basic shelter and water, and fed using cut-and-carry agro-forestry fodder management systems. Caritas has some good examples of this management system in Oecusse, and another (larger) example can be found in seven sucos in the sub-district of Raumoco in Lautem where all forms of livestock grazing have been banned, with substantial production increases as a result.
- (vi) In terms of agro-processing, heed the above analyses in terms of potentially competitive export products - be cautious not to assume that if processing facilities (such as an abattoir³⁵) are constructed, raw product volumes will increase and therefore processing will be financially viable, particularly when unskilled labor rates are so high; noting that the exception could be value-added wood-based products.

³⁴ Import replacement does not mean protecting domestic producers, but looking at commodities with a proven domestic demand, and the prospect for greater efficiency in production.

³⁵ Assuming that 25% of the annual cattle turn-off of about 1,960 head are slaughtered (490 head) = 10 head per week = 2 head per day; means that an abattoir in Pante Macassar has no chance of being financially viable. Irrespective of where abattoirs are located there are some good “rules of thumb” which determine viability - the main one being reliable and regular throughputs of at least 10 head per day for a \$1.0 million investment (international standards). Note too that modern agro-processing requires technical engineers, and food technicians and moderately skilled workers.

- (vii) Ensure that the wishes and aspirations of Oecusse’s rural communities are factored into the OADP - this means that a planning process which is much longer than this ZEESM review will be required to ensure stakeholder engagement and commitment.
- (viii) Build on Oecusse’s reputation for cohesion and self-supporting rural communities, and the foundation laid by the “From Hunger to Health” Project.
- (ix) Decide how to deliver agriculture development support services (public or civil society role), and then ensure that such services are resourced adequately over the life of the OADP.
- (x) Identify how to target and train local farmers with the objective of improving their production skills for existing and new products, including an engagement policy which engenders communal cooperation and willingness to participate in their OADP.
- (xi) Ensure that the local policy and regulatory environments (e.g. for live cattle exports) are in place and supported by government.
- (xii) Identify essential agriculture infrastructure, such as refurbished or up-graded irrigation systems with support from TWSPs, plus access roads.
- (xiii) Identify other (non-agriculture) support required for the sector to grow and prosper, such as local ports, and access roads to enable forest-based products to be moved efficiently, and possibly local wood processing plants.
- (xiv) Cost the OADP, and then analyze the impact of individual product outcomes in terms of financial, economic and social (employment) impacts³⁶.

It is important to note the points made in (vii) and (viii) above - communal engagement in the OADP planning process. Past experience in Oecusse and in other parts of Timor-Leste (and in other parts of the developing world) indicates that it is essential that target rural communities are engaged in the planning process. Normally this community engagement and planning process is implemented over about 12 months, as reported by World Neighbours³⁷. It is apparent from field visits undertaken as part of this review, that Oecusse’s rural communities have not been sufficiently engaged in the ZEESM (agriculture) planning process.

The example of a possible OADP is summarized in Error! Reference source not found. The Plan is conservative in that estimated increases in cropped areas are less than those reported by MAF and the Agriculture Administration in terms of the sector’s “official” potential. This is because land ownership and distribution constraints within rural communities are likely to limit expansion of farmed areas. Similarly, because the current rain fed, swidden maize farming system is unsustainable, it has been assumed that the area farmed in this way would remain constant rather than grow. Domestic constraints and market sizes were used to determine food and annual cash crop areas in the OADP. However there are no land management constraints which might limit the areas planted to a range of tree crops, or for more intensive livestock raising.

³⁶ To some extent this review has completed a pre-design appraisal of an OADP concept, but there is considerable and more detailed planning and analytical work required before the OADP is finalized, and presented for funding.

³⁷ Pak Wayan Tambun, pers. com.

The OADP focuses on four core agriculture sub-sectors: (i) irrigated and rain fed crops; (ii) perennial cash crops; (iii) forestry and agro-forestry; and (iv) livestock production. This is a logical selection of target products which reflects the foregoing analyses and the recommended strategic approach to sector development. The OADP's structure (in terms of priority products) reflects the need for Oecusse to produce sufficient rice to avoid increasing imports, and to meet the demand for maize noting that maize is not a viable export crop. The final structure of the OADP was "driven" by a staple food demand and supply balance (See Volume II Chapter 4 for details).

OADP cost

The cost of the OADP is estimated to be \$47.5 million over a 10-year implementation period, including an increase, in relation to current operational costs, of about \$43.5 million³⁸. About 65% of the cost would be associated with structural improvements to the Tono irrigation scheme, improvements in terms of TWSPs for Tono, and the "greenfield" development of an additional 1,000 ha of irrigated land. Note that even though the foregoing analyses indicates that Oecusse cannot compete on international markets for the export of rice (or maize) it is logical to focus on domestic production of import replacements³⁹ - particularly rice (6,000 Mt of grain or 11,000 Mt of paddy, equivalent to an additional 2,000 ha of irrigated land producing about 5 Mt paddy/ha from two crops per year). The other \$16.25 million has been allocated to the four core agriculture sub-sectors referred to above, plus additional transport and operations costs. Volume II Chapter 4 provides the details behind this costing. It also provides a possible phasing plan for the OADP and sensitivity analysis of the economic impacts, especially to labor costs.

Table 2. 2: Possible OADP

Category	System	Land Type	Product/s	Unit	Current Units a/	Current hhs b/	Potential Inc. Units c/	Potential Inc. hhs c/	Inc. Units in OADP d/	Inc. hhs in OADP
Agriculture	WBRD Irrigation and Tube-Wells/Small Pumps	Irrigated	Paddy	ha	2,000	4,000	1,000	6,000	1,000	2,000
			Vegetables e/	ha	200	4,000	200	4,000	0	0
	Rainfed annual crops	Flat coastal land	Maize with smother legumes g/	ha	2,000	2,000	2,000	2,000	0	0
	Rainfed annual crops f/	Swidden/eroded land	Maize with smother legumes g/	ha	5,000	10,000	5,000	5,000	0	0
	Perennial cash crops	Swidden/eroded land	Coffee Cloves Cashew	ha ha ha	Very small areas	Very small no. of hhs	No limit, except hh labour, ability of farmers to adopt, and level of support			
Forestry	Timber	Denuded forest	Teak	ha	Very small areas	Very small no. of hhs	No limit, except hh labour, ability of farmers to adopt, and level of support			
	Sandalwood	Denuded forest	Sandalwood	ha						
	Mahogany	Denuded forest	Mahogany	ha						
	Agro-forestry h/	Denuded forest	Multi-purpose spp. i/	ha						
Livestock	Cattle/buffalo	Swidden/eroded grazing land	Beef (5 head)	nos	18,500	6,697	No limit, except hh labour, ability of farmers to adopt, and level of support			
	Sheep/goats		Mutton (10 head)	nos	14,500	5,038				
	Pigs	Free range	Pork (1 sow)	nos	25,000	10,009				
	Poultry	Free range	Chicken (12 chickens)	nos	46,000	10,241				

a/ Approximate estimate - based on MAF's estimates and local opinions.

b/ Estimate based on 2010 census results, plus logical estimates based on hh numbers and family labour availability.

c/ Current estimates of potential reduced to reflect land ownership constraints to expansion.

d/ Increase in area limited to that required to satisfy domestic market.

e/ On same irrigated land as paddy.

f/ Assumes no change in area as the current swidden farming system is unsustainable.

g/ Use of velvet bean to smother end of season weeds, oversown, not separate crop.

h/For ruminant livestock production (cut and carry) and fuel wood production.

i/ Mixed perennial tree legumes and grasses, for fodder and fuel-wood

³⁸ Including \$10 million for the current upgrade of the Tono irrigation scheme.

³⁹ See Footnote 34

Potential impact of the OADP

The impact of the proposed OADP can be assessed in four ways: overall economic impact, impact on livelihoods, incremental food production, and number of benefiting households.

In terms of economic impact the headline economic internal rate of return (EIRR) is estimated to be 10%. The assumptions and full details behind this calculation are detailed in Volume II Chapter 4. However, it is important to note that this is a preliminary estimate. This EIRR is particularly sensitive to labor costs and was calculated using a \$2.50 per day cost. If labor costs were instead \$5.00 per day the EIRR would drop to just 3%.

The second assessment of impact is how farmers' incomes and the financial returns to family labor invested in agriculture production are changed through implementation of an OADP. Farm incomes (gross margins) and returns to family labor (\$/labor day) are summarized in Table 2.3. **Generally gross margins per cropped ha and per livestock production unit increase with OADP funded support, but this is not always the case for returns to family labor.** This is because the "potential scenario" models require considerably more family labor than the "current situation" models, and the costs of these additional inputs are not always offset by sufficiently high increased crop yields or increased livestock productivity. **The conclusion from this analysis is that rural families' standard of living from crop and livestock production would improve under an OADP as farm incomes would increase.**

Table 2.3: Financial returns for Farmers from Producing Crop and Livestock Products

Crop (1 ha model)	CS b/	PS & with OADP c/
Irrigated Paddy	Financial	Financial
Crop production (Mt) - 1 crop a/	2.62	4.50
Gross Margin per ha	\$970	\$1,471
Gross Margin per Family labour day	\$9.70	\$14.71
Rainfed Maize (WP includes storage)		
Crop production (Mt)	0.80	2.50
Gross Margin per ha	\$145	\$864
Gross Margin per Family labour day	\$1.45	\$8.64
Irrigated Legumes		
Crop production (Mt)	0.58	1.20
Gross Margin per ha	\$400	\$752
Gross Margin per Family labour day	\$4.00	\$7.52
Irrigated Vegetables		
Crop production (Mt) - 1 crop	1.60	3.20
Gross Margin per ha	\$1,828	\$2,192
Gross Margin per Family labour day	\$18.28	\$21.92
Livestock (1 unit)		
Beef		
Beef production (kg)	54	135
Gross Margin per unit	\$300	\$650
Gross Margin per Family labour day	\$5.00	\$3.61
Mutton		
Beef production (kg)	33	81
Gross Margin per unit	\$190	\$360
Gross Margin per Family labour day	\$3.17	\$2.00
Pork		
Beef production (kg)	210	338
Gross Margin per unit	\$1,995	\$3,528
Gross Margin per Family labour day	\$33.25	\$19.60
Chicken		
Beef production (kg)	17	50
Gross Margin per unit	\$137	\$197
Gross Margin per Family labour day	\$4.56	\$3.94

Note: forestry and tree crop models not included.

a/ Net of losses and retained seed -if applicable.

b/ CS = current situation.

c/ PS = potential situation and "with OADP".

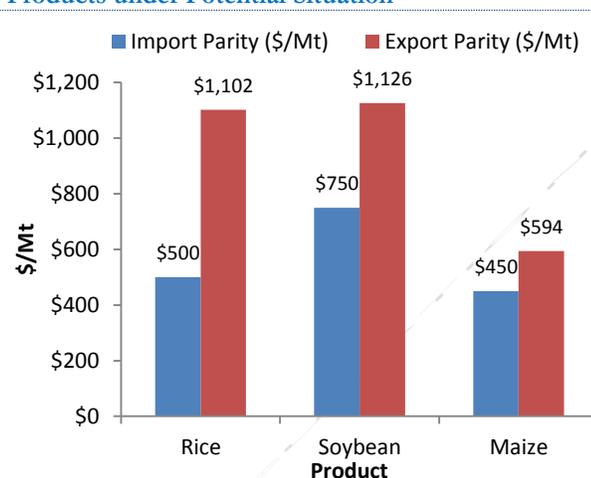
There are also potential high financial returns to farmers who produce perennial cash crops and forestry products, especially teak and mahogany. Table 2.4 above does not include farmer financial returns for perennial cash crops or forestry products. This is because returns per family day are not relevant due to the time taken for these crops to reach maturity and come into production. However another way to express financial returns from these longer-term crops is to include a reasonable financial cost (\$5.00 per day) for family labor in the calculation of Financial Internal Rates of Return (FIRRs). Table 2.4 contains the estimated FIRRs for these crops and shows that with the exception of coffee and agro-forestry, these non-food crops are attractive investment propositions for Oecusse's farmers with access to suitable land. And teak

and mahogany (tropical hardwoods) appear to be particularly attractive with approximate FIRR's of 38% and 23%, respectively.

Table 2.4: FIRR's for Perennial Cash Crops and Forestry Products

Product (1ha)	FIRR(%) ^{a/}
Coffee	2
Clove	23
Cashew Nut	7
Mahogany	23
Teak	38
Sandal Wood	15
Agro-forestry	0

Figure 2.1: Comparison of Oecusse Export Parity Prices, and Oecusse Import Parity Prices for Grain Products under Potential Situation



^{a/}Labour costed at \$5/day for family and hired labour.

Source: World Bank staff calculations

OADP food production estimates indicate that rice production would increase by five times, and maize production by 2.6 times, over ten years, limited by lack of competitiveness in international markets, and small domestic markets, rather than production area constraints. It is estimated that by year 10 rice production would be about 14,850 Mt each year, an increase of over 400%. By year 10 maize production would be 8,775 Mt higher each year, an increase of 56%. Note that these figures do not reflect Oecusse's maximum potential, but the limit posed by the lack of international competitiveness in grain markets and small domestic markets. As was shown in Chapter 1 and is reproduced in Figure 2.1, Oecusse is unlikely to be able to compete in export markets with its existing costs of production. The OADP has therefore been designed so that areas of paddy and maize are limited to that required to meet domestic demand.

Vegetable production is estimated to double. By year 10, vegetable production is estimated to be 320 Mt higher each year, an increase of 100%. Meat production is estimated to increase by about 193 Mt over the 10-year period, an increase of 22%. However this is one area where the scale of development could be further increased when preparing the final plan, not only because of growing domestic and international markets (for beef in West Timor) but also because of Oecusse's potential to grow more maize for non-ruminant livestock feeding. Note that the OADP does not include any increase in the maize production area, but does assume increased production from existing areas, and reduced storage losses. More details are in Volume II Chapter 4.

The OADP is also estimated to benefit a large number of Oecusse households. In summary this is expected to be: (i) the current 4,000 households with access to existing irrigated land, plus an additional 2,000 households who would benefit from access to newly developed irrigation land; (ii) the current 4,000 households (not mutually exclusive from those listed in (i)) who would benefit from improved vegetable production; (iii) the current 2,000 households who grow rain fed maize on flat land; and (iv) the current

10,000 households who grow rain fed maize on swidden land. Note that some of these households have been “double-counted” as most farming families in Oecusse grow a range of crops on irrigated and rain fed land.

In addition, about 5,000 households would benefit from investment in forestry products, and 2,500 from investment in perennial cash crops. And about 3,625 households would participate in improved livestock production activities. See Volume II Chapter 4 for more details.

Summary of OADP

The analyses completed as part of this ZEESM review indicate that in the future the development of Oecusse’s agriculture sector should focus on:

- (i) growing sufficient staple and nutritious food for its indigenous population (and an expected increase in migrant workers) plus ensuring that the Zone is self-sufficient in rice by increasing rice production by about 12,000 Mt per year;
- (ii) increasing farm incomes from annual and perennial crops (food and cash) through the promotion of improved production and storage technologies, and a small increase in the area of irrigated land (2,000 ha);
- (iii) protecting remnant forests and restoring over-grazed and denuded hills (the latter through no expansion of swidden farming) by controlling free livestock grazing and introducing more intensive livestock production systems; and
- (iv) “being ambitious” - setting out to prove that Oecusse’s government and its rural people have the determination to convert the wider Zone into a world-class and best-practice example of how to restore large areas of degraded land into productive (and financial and economically viable) farming systems based on: (a) perennial tree crops, (b) mixed hardwood species, and (c) agro-forestry species.

Potential linkages to agro-processing

Given the potential for increased tree crop and timber production in Oecusse, there is also an opportunity to move up the value chain into processing, although high wage costs pose a challenge.

Agro-processing faces similar issues to manufacturing in that it will be disadvantaged by the high wage costs in Oecusse. However, it has the advantage of primarily making use of local inputs – agricultural products; particularly timber. This can help to improve competitiveness despite high wage costs. Compared with unprocessed agricultural products, processed products also have higher value to weight ratios and are thus better able to offset high transport costs.

In addition to high wage costs there are four challenges to developing agro-processing in Oecusse.

Firstly, many agro-processing facilities are relatively capital intensive and so will probably require significant foreign investment to be viable. ZEESM could take a lead role in attracting this kind of investment into Oecusse. Secondly, processing plants often require relatively large amounts of reliable electricity to run machinery. This could be alleviated by the new power plant under construction. However, the most efficient diesel plants in Timor-Leste produce at a cost \$0.49 per kWh, with most of the cost being diesel fuel. This

electricity price is subsidized to a price of \$0.24 per kWh for commercial use⁴⁰. Government subsidies of \$0.25 per kWh could become very costly if used by relatively energy intensive industries. Thirdly, modern agro-processing requires technical engineers and food technicians in many instances, as well as moderately skilled workers. Both immigrant labor and aggressive training schemes will therefore need to be pursued. Finally, agro-processing depends on reliable agricultural input supply chains with consistent volumes and quality. This is likely to remain challenging for Oecusse and reinforces the need to strengthen the overall agricultural sector. Smaller challenges, such as the likely need to import all packaging, will also need to be addressed.

Overall, despite the challenges, agro-processing, notably for forest products, is likely to offer the strongest possibility of more advanced economic activity in Oecusse. These challenges will vary in severity depending on the type of agro-processing. Efforts should be made to target agricultural and agro-processing in sectors where the most restrictive of these challenges – such as the electricity price – are least severe. In general, the choice of agro-processing necessarily should also be informed strongly by productivity and production levels for certain crops. It would appear that forestry products may offer the best chance for agro-processing in the near term.

2.3.3 Services

The two main sub-sectors proposed for Oecusse in services are tourism and logistics. Each is considered here in turn.

Tourism

In Oecusse today, this sector is characterized less by tourism per se, and more by a ‘visitor economy’ that may grow. Tourism has frequently been identified as holding significant potential for Oecusse. To create a fully-fledged tourism sector is likely to be challenging as highlighted in Chapter 1, section 3. It is advisable that instead of focusing on building a tourism economy per se that Oecusse focuses on building the visitor economy it has a foundation in. In doing this though it will be critical to build gradually and not engage in excessive development in response to short-term events. For example, there will be a significant influx of visitors for the 500th anniversary commemorations in 2015. However, it will be critical that this one off event does not either generate unsustainable excess capacity in Oecusse or pre-determine the type of tourism for Oecusse without a proper assessment of the potential benefits of different types of tourism.

A number of steps should be undertaken to help with the development of the visitor economy.

1. Harness government and private sector activities in areas that are the building blocks for tourism. This way more pressing needs could be addressed while building a foundation for the future visitors. Current support could include addressing major constraints (such as infrastructure, water, illiteracy; unskilled labor force) first.
2. Strengthen and support cultural initiatives. Historically, there has been some public sector focus on supporting cultural aspects of the district. A cultural resources assessment was conducted in 2014 as a step towards inventorying community based activities such as traditional music, dancing and

⁴⁰ Timor-Leste Infrastructure Public Expenditure Review, World Bank

drumming as well as crafts (such as masks, tais weaving and pottery). Going forward, there is a need to inventory identify all performing and crafts groups and provide quality support across Oecusse; organize a central place for training and performances; and build capacity through training and engagement.

3. Create and implement regulatory standards such as lodging grading schemes. The emerging cottage industry to serve the basic needs of visitors and provide an authentic taste of Oecusse needs public support. It is critical at this early stage for the public sector to create regulatory standards to ensure a quality visitor experience and foster the industry.
4. Gather data to inform future policy making. To provide more meaningful data to inform policy decisions, the public sector also needs a system to collect tourism statistics and feedback from visitors.
5. Develop educational levels and hospitality training initiatives in Oecusse. Current operators have no formal training and would likely benefit from some training. In order for the local population to participate in the tourism industry significant workforce development and industry-specific training as well as nurturing entrepreneurship for the local population is a pressing priority.
6. Transport infrastructure will also need improving as the visitor economy grows by air, sea and land. However, it will be critical to accurately project the scale and type of tourism expected so as to not spend excessively on unnecessary infrastructure. Infrastructure development ideally should proceed in stages to allow for adjustments to plans as required.
7. Attracting investments for tourism—through ZEEISM or otherwise—are vital. Of note, while tourism investment is often thought of as “doing the right thing”, it is in fact still risky and requires careful analysis. Further, sizable investments are always viewed in relation to their opportunity and risk amongst a variety of investment opportunities. Hence, any tourism investment opportunities in Oecusse will likely be viewed by investors who have multiple options. Creating an attractive offering is a challenge that many other destinations have faced and developed creative solutions.

To fully gauge Oecusse’s sector competitiveness a detailed feasibility study will need to be carried out that would among other things assess Oecusse’s advantage over other investment destinations in the region and projected demand among potential investors, as well as an economic analysis.

Logistics

Initial analysis suggest three main constraints to transforming Oecusse into a logistics hub – absent shipping lines, competing ports and low returns to expanding infrastructure. Firstly, and most importantly, there are few major shipping lines passing close to Oecusse. This is outlined above in Figure 1.11 and Figure 1.12. As they show, for Oecusse to become a logistics hub it would need a large number of shipping routes to shift to pass by Oecusse. This cost is unlikely to be attractive given there is not a large domestic market to serve by land from Oecusse. The total population of the Island of Timor is only three million people.

Secondly, there is also significant competition from other Ports in the Region such as the Port of Tenau at Kupang and, slightly further away, Surabaya. Kupang today already operates as a hub from which products are delivered to Nusa Tenggara Timor. Both these ports have the advantage of being located in the same country as the likely primary destination of most regional shipping routes that could use Oecusse as a logistics

hub. Indonesia is unlikely to allow its own ports to be undermined when it can relatively easily influence Indonesian shipping companies to use Indonesian ports as logistics hubs. In addition, the new port at Tibar in Timor-Leste is specified to have a very large capacity (ability to handle ships of up to 7000 TEUs) and would likely be a direct competitor to Oecusse for logistics services. It is unlikely that volume of trade in the region could support both ports at such a scale.

Finally, Oecusse port today has very limited capacity and currently only services ferries. To develop it to the scale required for a logistics hub would require dramatic investments and, given the issues outlined above, would not necessarily provide the kind of return required to justify this. Comparisons with Singapore in this area are largely misleading given Singapore is strategically positioned on the Straits of Malacca which, by virtue of its geography, has long been one of the most important shipping lanes in the world. It links the Pacific Ocean and the Indian Ocean and in doing so connects the major markets of India, China, Japan and South Korea. Consequently, estimates suggest about 25% of the world's traded goods pass through the Straits of Malacca.⁴¹

2.4 Tailoring the ZEEs plan to get the fundamentals right

The critical importance of focusing on sectors in which the SEZ can be competitive is addressed in the prior section. This section will briefly provide recommendations with regard to the other four fundamentals of successful SEZs as it relates to Oecusse.

2.4.1 Build appropriate infrastructure

When determining the infrastructure requirements of a zone it is important that this be driven by the zone's anticipated tenants. As a preliminary measure it will be useful to contact the investors from Australia, Indonesia, Singapore, and elsewhere that are said to be interested in Oecusse, to gauge their level of interest and understand the infrastructure that is required to support their would-be investment. Speaking to these potential investors will also feed in to the demand assessment element of the feasibility study suggested in the previous section.

While some of the infrastructure in any future Oecusse zone will be tailored towards the target sectors, other aspects of it will cut across sectors and be a fundamental requirement of any potential future investor, such as:

- Utilities: electricity, water, sanitation
- Telecommunications: High speed Internet connection, local and international landline, mobile roaming
- Transportation: Given that any type of zone in Oecusse will likely include the in and out movement of cargo and people, the land, sea and air transportation infrastructure will be an important factor for success. However, given the absence of large trade volumes and visitor numbers (in the case of tourism), the economic case for significant investment in transportation infrastructure may be weak. Any infrastructure development that does occur should be phased to avoid excessive spending, while allowing for adjustments as the need unfolds.

⁴¹ Freeman, D. The Straits of Malacca: Gateway or Gauntlet?, 2003

The infrastructure that will be offered to individual investors needs to be considered in line with the target sectors. Only after sectors are clearly targeted should infrastructure be built that relates to those sectors. For example, manufacturing factory space should not be built if there is no realistic chance of manufacturing investment.

Some existing facilities, such as the warehouse near Citrana, the livestock training centre near Maquelab and office complex on the outskirts of Pante Macassar, might be usable existing superstructure, although an assessment will need to be made with respect to build quality, suitability of location, intended usage, etc.

Responsibility for infrastructure development is typically split between onsite and offsite. The zone/cluster developer is responsible for all the onsite works, while the government is responsible for the “last mile” offsite infrastructure. Given that the ZEESM mandate covers the whole of Oecusse, negotiations with potential developers will focus on their particular area (cluster) of interest and ZEESM will be expected to make a commitment regarding the support infrastructure required for the cluster.

2.4.2 Improve the ease of doing business

Successful Economic Zones are driven by a range of inter-related factors, such as infrastructure, market access, connectivity, regulatory framework, labor pool and operating costs. This applies across all sectors, and while each of these considerations are important in their own right, there is an increasing realization among zone operators that their offering needs to extend to a more services-driven environment which enables investors to focus on their business with minimal red tape and coordination with local authorities.

If set up properly, a one-stop-shop (OSS) can be an effective platform from which to deliver the services sought after by investors for the smooth set-up and operations of their business. One-stop-shops are not limited to zones, but are often a selling point of national Investment Promotion Agencies as part of their national investment promotion strategy. The Oecusse authorities should consider Timor-Leste experience with the Business Verification and Registration Service office (SERVE – *Serviço de Registo e Verificação Empresarial*) as a local example of how an OSS can effectively simplify the business registration and licensing process.

Given some of the bigger challenges faced by Oecusse, the strong government support that is evident would imply that establishing a OSS that efficiently caters to the needs of potential investors would appear to be a low hanging fruit that could be quite quickly put in place and operationalised (whether in or out of a SEZ framework). This would also offer potential investors early confidence of ZEESM’s commitment to offering the environment that would make them consider investing in Oecusse.

The key aspect of the OSS that needs consideration is the level of authority afforded to it, ranging from full delegation to the role of a coordinating agency. This is discussed in greater detail in Section 4 of this chapter, but a key aspect here is that an OSS should have the authority/ability to issue the necessary licenses, permits and permissions that enable investors to set up and operate in a timely and efficient manner.

Furthermore, should ZEESM be looking to attract private participation in developing and managing the zone, any potential zone developer would consider a comprehensive and efficient OSS of critical importance

since this would impact its ability to attract and retain investment, and hence generate a sustainable revenue stream.

In addition to an OSS, another typically key consideration of investors is related to the easy movement of goods in and out of any future zone. It is therefore important that ZEESM coordinates with the customs authorities to ensure that imports and exports are carried out efficiently and expeditiously. This would typically involve onsite customs inspection and clearance within the boundaries of the zone/cluster, along with simplified import/export procedures, etc.

Policy certainty, and the Ease of Doing Business is typically underpinned by a robust legal/regulatory framework. In the case of Oecusse, ZEESM has been established as the governing authority with delegated decision making powers, which grants Oecusse a certain level of autonomy from the rest of Timor-Leste. However, further clarity is required with regards to any SEZ law that is applicable to Oecusse and its implications for potential investors with respect to business start-up, operations, protection and incentives, and how this compares with international best practice.

2.4.3 Make the most of location

While Infrastructure is essential to overcome geographical isolation and poor connectivity, it should be guided by need and investor potential. Oecusse's location poses a challenge for would-be investors and tourists/visitors alike. Airport facilities are virtually non-existent, port facilities primitive and shipping costs are prohibitively expensive. Significant improvement is needed to Oecusse's multimodal connectivity in terms of its air, sea and land transportation infrastructure. Plans to invest in this key infrastructure, and therefore improve Oecusse's accessibility, would be a key consideration for any potential private zones developer (regardless of the primary sector of interest) when assessing viability for a zone, as well as any potential companies that might consider setting up operations in Oecusse. The authorities should collaborate with potential investors to ensure that any connectivity-enhancing infrastructure is appraised to be proportional to need, considering full economic costs and benefits.

Oecusse's small size, location and potential product base, means the market to be served from any potential zone is limited to Timor and other surrounding islands in the near term. The domestic market is very small at 70,000 and positioning Oecusse as a logistics hub is perhaps unrealistic given the poor transport connections and the competition from the Port of Tenau at Kupang and, slightly further away, Surabaya. Kupang today already operates as a hub from which products are delivered to Nusa Tenggara Timor. Both these ports have the advantage of being located in the same country as the likely primary destination of most regional shipping routes that could use Oecusse as a logistics hub.

Considering its location the key markets that are likely to be served in the near term out of a zone in Oecusse are West Timor and Dili, especially when considering agricultural products. More importantly, the volumes of products that Oecusse is likely to be able to produce in the medium term will not be sufficient to attract the shipping required for more distant markets as is outlined in Section 2 of this Chapter.

As such there are two important steps that can be taken to address Oecusse's locational constraints.

1. First, improve the ease of trade with West Timor in both practical and regulatory terms. As outlined in Section 5 of Chapter 1 specific efforts in the livestock sector could make a significant difference

and should be taken forward as a priority. Separately, upgrading the status of Oecusse Port to an international port is recommended for ease of import of materials for the ZEESMS project.

2. Second, improve the ease of trade with Dili. This should involve increased frequency of ferries and possibly efforts to reduce the cost of the ferry for commercial products. It should also involve efforts at significant reform of the border processes and visa requirements when travelling from Dili to Oecusse and in the 'corridor'. The process as it currently stands is cumbersome and expensive as outlined in Volume II Chapter 5.

Besides improving the infrastructure, it is essential to have a special agreement between the government of Timor-Leste/Oecusse and the government of Indonesia to have better connectivity in the corridor. Specifically, the Government of Timor-Leste should consider the prospect of expanding the provisions for transit traffic between Dili and Oecusse, currently captured in the 2004 Customs Code (Decree-Law 11/2004, Article 112), and engage with the Government of Indonesia to assess the possibility of mirroring this legislation and facilitating transit traffic. Such arrangement would increase the certainty of movements of goods between Dili/Oecusse via the Indonesian territory and allows for higher security tracking and monitoring of vehicles and cargo. It would also contribute to reduce the time and cost it takes to cross the borders. With a view to the longer term, a study into the logistical and technological requirements of a transport corridor, could be undertaken.

2.4.4 Invest in a healthy and educated population

The current ZEESMs plan focuses relatively little on investment in health and education in the local Oecusse population, given the historical underinvestment outlined in Chapter 1. As highlighted above, to succeed ZEESMs needs to build a strong community nearby that is healthy and educated. As such, the ZEESMs plan should be revised to substantially increase spending on health and education. Chapter 1 and Chapter 3 in Volume II explain the extent and impact of underinvestment in these sectors to date. Basic education in particular requires major investment with Oecusse receiving the lowest investment in education per capita of any district in Timor-Leste between 2013 and 2015. This has resulted in very poor educational outcomes in Oecusse which compound already low literacy rates among the adult population, highlighted in Section 1 of Chapter 1.

ZEESMs should conduct a review of education in Oecusse to understand the most critical areas of investment. This may not simply be infrastructure but also focus on quality, involving access to school materials and teaching training. In addition to investment in basic education, as ZEESMs develops a clearer sectoral focus it should consider development of vocational training facilities for priority sectors. Health outcomes are considerably better than educational outcomes in Oecusse but this should remain a focus for ZEESMs as the program develops.

2.5 Social issues: managing migration and community engagement

This section will consider potential future challenges in Oecusse relating to two social issues: **community engagement and migration**. It will outline each problem and suggest some steps that can be taken to remedy potential bad outcomes.

2.5.1 Migration

A detailed analysis of migration by the International Organization for Migration (IOM), available in Chapter 7, suggests three possible scenarios for Oecusse with regard to migration assuming the ZEESMs project goes ahead; a best case, worst case, and business as usual scenarios.

Large inward migration, drawn by US-dollar earnings potential, risks creating traditional problems relating to conflict and the exploitation of labor and vulnerable groups. The ZEESMs project is likely to increase economic activity and opportunity in Oecusse, in particular given high dollar denominated average wages. As such, it is likely to increase domestic and international migration to Oecusse. Currently there do not appear to be any detailed plans to deal with this potential influx and immigration policy appears ad hoc with weak data. The IOM therefore suggest, based on evidence elsewhere that even under business as usual there is a risk of medium to high levels of irregular migration to Oecusse with associated levels of labor exploitation. In the absence of reform, there is also a risk of some trafficking of men, women, boys and girls for labor and sexual exploitation and low-level tensions between the local community and migrants. Pressure is also likely to increase on facilities and economic gains from migration will be limited. If the worst case scenario were to transpire this could be significantly worse.

To avoid these problems a number of steps are needed.

- Clearly delineate authority over different aspects of migration between government and ZEESMs regional authority.
- Conduct an analysis to understand additional human resources required to deal with migration into Oecusse
- Begin regular monitoring of the Oecusse labor market
- Establish a clear migration policy for Oecusse to facilitate migration of skilled, semi-skilled and unskilled labor as required
- Invest in basic services to ensure immigrant population is provided for

2.5.2 Community engagement

Community leaders voiced three primary concerns about the ZEESMs project relating to local participation, immigration and land. Firstly, they are concerned that the local community will not be empowered to significantly participate and instead will just be spectators who benefit little from the opening of the economy. More concretely, they cite the need for significant investments in education and training to help ensure that Oecusse residents themselves benefit fully from new investments.

There is no doubt that a central focus of the ZEESMs project should be ensuring that *existing* residents of Oecusse are equipped to take advantage of the benefits of increased economic activity. This should be at the

center of the Authorities' expressed plans for a 'Social Market Economy'. Options to explore this include investments in education, apprenticeships and deliberate efforts to integrate local produce into what is consumed in the SEZ during the construction phase as well as the future.

The second concern is that the expected influx of foreigners associated with the ZEESMs will damage the cultural fabric of the community. This is a concern in terms of cultural norms and behaviors – which should give pause for thought, for instance on any considerations for a gambling hub in Oecusse. In addition, Oecusse currently has particularly strong credit and savings groups and these have been a feature of Oecusse for a relatively long time. There is a risk that a major influx of foreigners undermines the bonds that underpin these groups without providing adequate access to alternative methods of savings and credit. This issue underlines the importance of effective management of migration to Oecusse, highlighted above.

Finally, the issue of land is a major concern. ZEESMs proposes to acquire the land required to complete the 107ha zone from the existing owners. However, the proposed compensation is shares in the ZEESMs holding company which is unlikely to have any significant tradable value for a substantial period of time. In effect, poor households will not be compensated at all in the short term.

Unsurprisingly, this is a major concern for the community with numerous community members raising it in interviews. It would seem that residents should at least have the option to take compensation in cash rather than shares. Additionally, this appears to risk being at odds with Clause 2 of Article 27 in the translated Oecusse Law, Law no. 3/2014 of 18 June, which states “The compensation provided must match the actual value of the property at the time of expropriation and should be freely convertible and paid without undue delay.”

The authority is exploring further measures in combination with requests from people potentially displaced by the airport and Sakato-Pantai Makassar road expansion projects.

Underpinning a response to all three of these issues must be a concerted and sustained effort to engage and listen to existing community leaders through regular outreach, meetings and dialogue. Moreover, such meetings should not be constructed as opportunities for the ZEESMs team to inform residents of plans but rather an opportunity for residents to inform the ZEESMs team of their concerns and discuss ways to remedy such concerns. There is a risk that without addressing these concerns through more sustained engagement that the community may turn against the project.

2.6 Addressing zones governance

As the investment in Oecusse's development of agriculture and human development advances through phase 1 activities, and if the case for an SEZ is assessed to be made, it will be critical to consider the most appropriate zone governance. There are three broad governance forms.

2.6.1 An approach to establishing governance structures

Two principles should guide the choice of governance model for a special economic zone – roles and division of labor, and sovereignty. The first principle is to decide which actor should play which role in governance and implementation based on the capability of the actor. The second principle is to recognize

there may be some tasks which are sensitive or require a national perspective which sovereign government may need to complete such as making decisions on the overall sector strategy for the zones.

A first step to deciding on an appropriate corporate structure for zones is to set out a list of core tasks required for the design, development and operation of a zone. For the development stage the type of tasks that should be considered includes the following. Neither of these lists is exhaustive and a list should be created specifically for the ZEESMs zone:

- Establishing overall zones strategy
- Providing land
- Infrastructure planning
- Infrastructure development in zone
- Supporting infrastructure development outside zone
- Tenant attraction.

For operations it includes issues such as;

- One-stop shop
- Logistics services
- Day to day operations
- Trouble shooting.

On the basis of the two principles identified above the different tasks can be allocated to different entities.

Once there is a clear allocation of functions, or division of labor, based on capability, an appropriate governance and accountability structure is easier to establish. Critical to the structure's success is the agreement on clear Performance management metrics to ensure each actor is fulfilling their requirements.

The governance and business model for an SEZ can be thought of on a scale from high public sector involvement to high private sector involvement. In line with this, below are three broad archetypes of governance structures for overall zones operation. Given the challenge of effectively establishing one-stop shops three models of one-stop shops are also highlighted below. In theory, the model of one-stop shops chosen could match with any overall governance structure although there is an obvious more natural fit between some combinations.

Government developed zones

A government driven approach to zones requires government agencies to execute the vast majority of tasks associated with designing, developing and operating a zone. They would take the lead in designing the zone, finance the development of the zone directly with government capital, and construct infrastructure directly or with a state owned construction company. Government agencies would then directly lead tenant attraction and be the onsite operators for the zone dealing with everything from water connectivity issues to arranging logistics. This approach can be challenging to make a success given the significant expertise required across a wide range of functions which is often not available in the public sector.

Furthermore, attracting private investors to finance infrastructure development allows scarce public capital to be used in other ways. Governments that approach zones development in this way need to be highly capable and to have access to abundant capital. This approach is often associated with governments that have a residual suspicion of the private sector.

Private sector developed zones

The opposite approach is to give a private sector developer significant license to design, develop and operate the zone, often used for smaller scale industrial parks. In this approach the government – often at the Ministry of Commerce or Industry level – will typically outline a small number of high-level goals it hopes to achieve through the creation of that zone. However, it will then identify a private sector actor to design, develop and operate the zone subject to a set of performance metrics. In this set up there is typically no creation of an additional agency for zones with oversight coming directly from the Ministry level. The private sector operator will be allocated an area of land and given license to make most decisions on how to maximize the return on their investment in the zone including physical lay-out of the zone. This approach is most commonly used for smaller scale industrial parks. The risks of such an approach include the developer attempting to maximize short-term return by charging uncompetitive rates to tenants or failing to achieve the governments underlying goals - often due to poorly defined performance metrics by the government. Investors may also fear expropriation of the asset by the government in the event that it is a success and consequently under-invest in the zone.

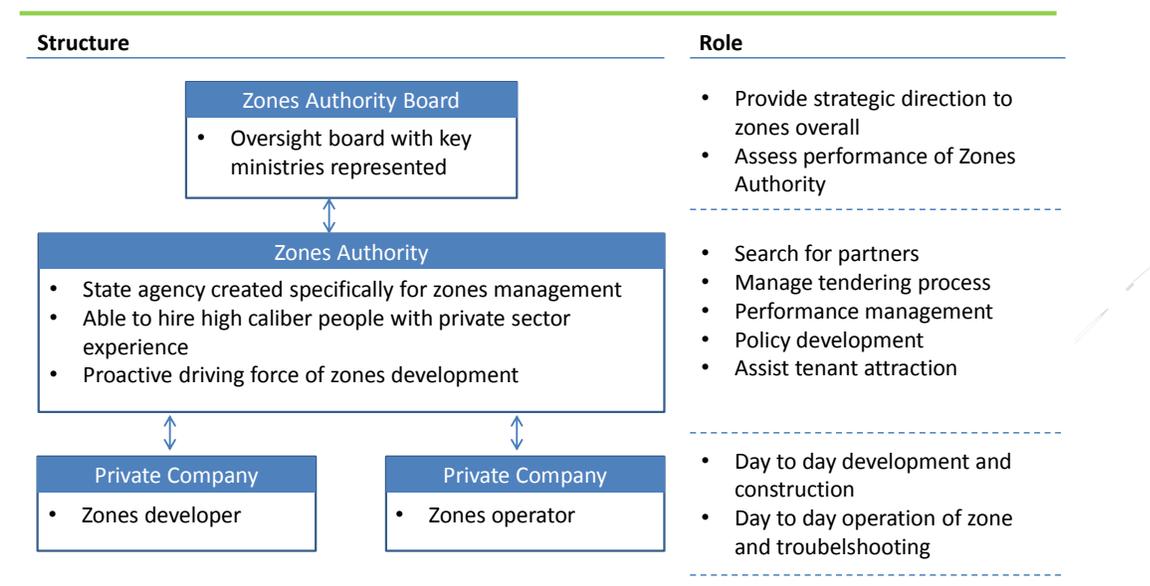
Public-private partnerships for zones

There are a variety of arrangements which can broadly be defined as PPP that fall between these two options. An example of this would be to set up a government agency – for example the ZEESMs Authority - charged with overall responsibility for the zone but with the ability to engage the private sector heavily where beneficial. The Authority might be responsible for searching for relevant private sector partners, managing the tendering process, overall performance management of contractors, and liaising with government Ministries on relevant policy questions. The Authority itself should be a highly capable institution that is able to hire high caliber talent and operate in the manner of a private sector organization whilst retaining its status as a government institution. It, however, need not engage in direct development and operation of the zone itself but could instead contract private sector partners with experience in development, tenant attraction, or operations to do this. The private sector partners could be one firm or multiple firms.

The Authority itself should also be subject to government oversight and direction, potentially in the form of a board, with senior representatives from relevant government Ministries. This would ensure government retains the ability to provide overall strategic direction whilst leveraging the expertise of the private sector. This structure is detailed visually in Figure 2.2.

Figure 2.2: Example structure of a PPP governance model for a zone

Example structure of a PPP governance model for a zone



Source: World Bank

An alternative vision, similar to the proposed for ZEESMs, would be for private sector investors to buy equity in a government company that is established with the explicit purpose of developing and operating the zone. There are two linked risks with this approach. Firstly, this approach recreates some of the issues with government developed zones – namely that the government lacks experience and expertise in core activities required for successful zones. Private sector equity alone will not provide the necessary expertise. Secondly, and as a direct consequence of the first issue, investors may be unwilling to put money into a newly established company with no track record in the area.

2.7 The path ahead

Oecusse is starting from a challenging situation but with the ZEESMs project has a significant opportunity to improve the lives, livelihoods, and futures of the people of Oecusse as well as to become an example of a successful development model for the rest of the country and the wider region. To achieve success requires a clear-eyed understanding of Oecusse’s situation today and a phased approach. Phase one, which could take up to 10 years involves completing the picture of Oecusse’s current constraints (as begun in Chapter 1 of this report), investments in agriculture, physical and human capital, and first steps to improving the investment climate. Should the pre-requisites for a successful SEZ be put in place, it will be critical in phase 2 to ensure that such a zone is well governed, and with reputable and highly experienced operators.

Agriculture is the main economic activity of the vast majority of the population. As such, it is also the only sector in which the local population has both experience and skills. Formal education achievement and experience in sectors such as manufacturing and tourism is extremely limited. It is therefore agriculture that must be the basis of Oecusse’s future development. Oecusse’s location must also be taken into account in strategic plans. It is not on any major or regional shipping routes and is too small to be likely to have the scale of production needed to attract dedicated shipping with a view to becoming a regional export player.

Nonetheless, Oecusse does have significant resources and opportunities. Despite the dominance of the agricultural sector in the local economy Oecusse still imports large volumes of staples including rice. Investment in agriculture – as outlined in the OADP in this document - could start by serving local Oecusse demand which will itself increase with development of ZEESMs. This will require significant investments in agriculture extension services, provision of fertilizer and seeds, improved rural roads, and strategic investments in improving irrigation services. Over time this could provide the opportunity for Oecusse to export some food products to the rest of Timor-Leste and to West Timor. This will require the development of the overland corridor between Oecusse and the rest of Timor-Leste with a particular focus on simplified border procedures.

The second major opportunity for Oecusse is in the forestry sector. Specifically the tropical hardwoods of mahogany, teak are estimated to offer excellent returns. Sandalwood also represents a potentially major opportunity. A focus on forestry would be a real point of distinction between Oecusse and other districts of Timor-Leste. In both agriculture and forestry in the longer term there may be economically viable opportunities for processing, especially if the price of electricity can be reduced. The ZEESMs project should focus on these areas of opportunities.

The right sectoral focus alone though will not be enough to ensure success. Infrastructure investments are also important but critically these should be tailored to actual investor demands rather than on a 'build and they will come' basis. Significantly, living standards – and in particular educational standards – in Oecusse are currently low. A core part of the ZEESMs project should be to increase attention and investment not just on job creation but on social spending. This process should involve close engagement with the community itself. The establishment of an effective one-stop-shop for investors and the simplification of customs processes with West Timor and the land corridor to Timor-Leste are both critical. Decisions on when and how to source support in developing and operating a possible SEZ should be guided by questions of capability: if the Authority does not have the necessary capabilities in house outside help should be sought, but only help with well proven experience.

Under the ZEESMs initiative Oecusse has a remarkable opportunity to develop in a way that benefits the wider community. For this to succeed it is critical that the approach taken builds on the existing strengths of the community and develops sustainably whilst eschewing high visibility and high cost initiatives that, while well-intentioned, may prove ineffective in the long run.

Volume II provides substantially more detail on the situation and prospects for Oecusse outlined in Volume I.