



Problems with Energy Security and Environment in Maritime Border of Timor Leste

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Abstract. After being separated from Indonesia's sovereign territory, Timor Leste has the most obvious energy issues because its oil wealth is located on the disputed maritime border with Australia. This energy wealth is Timor Leste's advantage and bargaining chip, but it is also its weakness because this country is too dependent on natural oil resources for its economic growth. This research will study two main ideas: identifying Timor Leste energy security problems in the maritime border region with Australia and how it impacted to the environmental damage. To analyze this, this research will apply the concept of energy security to identify the biggest problem of Timor Leste, namely energy dependence, and environmental damage due to oil spills in the maritime border of the two countries. This study formulates several impacts related to aspects of political-economic impact, environmental impact. there are economic issues with Timor Leste's oil reserves, which are predicted to run out soon because Timor Leste's oil revenues have declined dramatically.

Keywords: Energy Dependence, Environment Damage, Maritime Disputes, Timor Leste Oil, Montara Issue

1 Introduction

Timor Leste was formerly a province of Indonesia and has a section that borders it directly, specifically in the province of East Nusa Tenggara. However, on August 30, 1999, the people of Timor Leste opted to hold an independence referendum, and 344,580 people (80% of total population), voted in favor of leaving Indonesia. Following the vote, Timor Leste changed its name from East Timor to Timor Leste or the Democratic Republic of Timor Leste. Timor Leste has been a sovereign nation since gaining its independence in 2002.

Timor Leste still faces several crucial problems. It started its independence under difficult circumstances: poverty, poor education, the lack of industrialization, and domestic

political turbulence. The other side, future oil revenues are predicted to be substantial, which could potentially be of large help in Timor-Leste's strive for development.

This paper aims to explore the energy security issues faced by Timor-Leste, which is the energy scramble and environment problem over the maritime dispute border.

The influence of oil resources, which are also connected to Australia, is of course one of Timor Leste's most obvious energy issues. The richness of oil and gas resources on Timor Leste's maritime borders is Timor Leste's advantage and bargaining chip, but at the same time it is a weakness because this country is too dependent on natural oil resources for its economic growth. The Secretary of State for Natural Resources of Timor Leste, Alfredo Pires, (2010) once said that the definition of Timor Leste's natural resources includes: oil, gas and minerals. Exploration of oil and gas available in the sea is a priority for the Timor Leste government. Oil and gas revenues (especially oil) are considered to provide great opportunities in efforts to create development-oriented policies [1]. But on the other hand, Timor Leste is also often mentioned as a country with Natural resources have sometimes been seen as "a curse" because of the weak economic performance of many resources rich nations. In addition, resource rich countries tend to have a more unequal income distribution, less democratic regimes, and more corruption. These findings might sound surprising but while rich resource endowments were an advantage for industrialization and growth during the nineteenth century, falling transport costs have later reduced this growth effect and such endowments might instead lead to various problems as discussed below. Countries with rich oil endowments are no exceptions to the resource curse and as a group they have performed economically worse than other countries over the last couple 9 of decades. In fact, after some years of rapidly rising incomes, most oil rich countries have seen their per capita incomes fall back to the levels of the 1970s or 1980s (Karl and Gary, 2004, p. 35) in [1].

The main problem is that oil wealth lies in the disputed maritime border with Australia. Geographically, Timor Leste is close to the continent or country of Australia. The controversy over the maritime boundary between Timor-Leste and Australia goes back to the colonial days. Indonesia and Australia agreed on a maritime boundary in 1972 based on the principle of 'continental shelf' rather than on the distance between countries (King, 2002:3) according to Mats Lundahl and Fredrik Sjöholm [1], once predicted that A likely future scenario is that.

Australia and Timor-Leste will separate the financial and the boundary aspects of the dispute and agree on a revenue sharing arrangement in the disputed area and continue with negotiations on the sea boundary.

Therefore, Timor Leste's desire to win the maritime border dispute and win in the struggle for energy exploration in this region is influenced by its very high level of need (high demand) due to its high dependence on the oil sector. according to the World Bank [2], so far, East Timor's economy has been dependent on earnings from its oil and gas reserves, which are expected to be depleted in a decade. According to the World Bank, East Timor has successfully rebuilt public infrastructure, reduced poverty, and quickly built from

scratch a network of functional public institutions since its independence in 2002. However, the World Bank notes that there is an "urgent need" for private sector-centered development to not be dependent on the oil sector.

The study aims to explore East Leste's energy security problems on its maritime border with Australia. This research has two main objectives, namely: a) identifying Timor Leste energy security problems in the maritime border region with Australia; and b) mapping the energy policy adopted by the Timor Leste government to overcome this problem. To analyze this, this research will apply the concept of energy security as a fairly new approach in international non-traditional security (NTS) studies to look at East Leste's status as an energy-rich country, but its negotiating position is weak.

Energy security means a country's ability to protect and guarantee the sustainability of its energy from dangers, threats, or risks. Threats can cause political-economic impact, the environmental impact, and the impact on government policies to address this issue. APERC defines energy security as the ability to guarantee the availability of energy reserves on a sustainable and periodic basis using price levels that will not harm the country's economy (Asia Pacific Energy Cooperation). This approach also identifies several factors that influence energy security, including energy resource availability (availability of energy sources), accessibility barriers (accessibility barriers), environmental acceptability (environmental acceptance), and investment cost affordability (affordability of investment costs) [3]. This study elaborates the availability of Timor Leste's energy reserves in maritime disputed border area and Environmental Acceptability. The process of exploring and distributing energy sources from gas fields to consumers is a long and distant process, because it crosses national boundaries at sea. It is not enough to just rely on available energy, but it is also necessary to ensure that the energy process does not cause environmental damage, such as oil spills in sea waters. The existence of concerns about energy disruption and insecurity in these two indicators are very important, making this energy issue part of the country's national security issue [4].

2 Research Methods

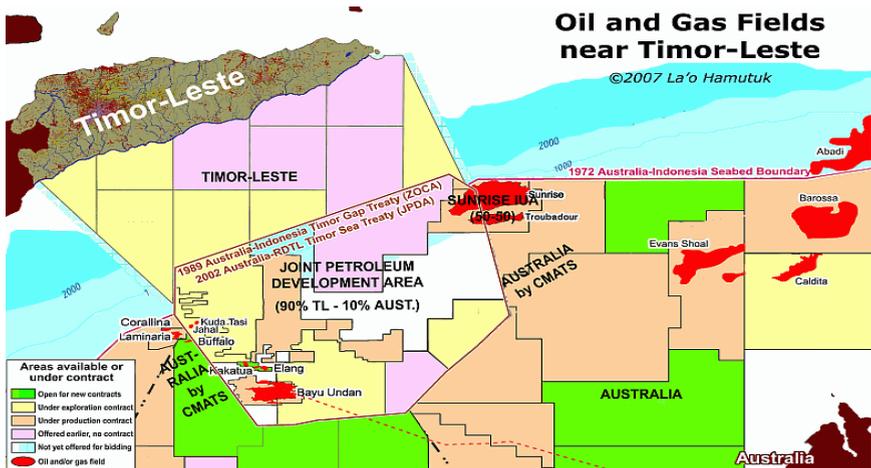
To generate descriptive data, the study utilized qualitative approaches. Since the qualitative method is strongly tied to historical events, social life, and other aspects of human experience, statistical procedures are not used in its implementation. The process of gathering variables is highlighted because of their potential to affect one another. The stage of this study starts with the collection of research materials, which is accomplished through literary analysis from reliable sources. Then, the main points of contention are gathered, and evidence for each point is located. Descriptive-exploratory research methodology is used, utilizing secondary and qualitative data types augmented by quantitative data. The first step in the analysis is to identify and refine the key components of a literature review.

3 Results

The existence of an oil field on the northern tip of Timor Leste, which borders Indonesia (NTT) and Australia, has caused two main of energy security issues, namely energy scramble in disputes maritime border and explosion of the Montara oil well, which triggered a debate about the impact on environmental damage. This study will discuss two main ideas that give impacts to political-economic impact, environmental impact, these two problem bring another issue for Timor Leste's oil reserves, which are predicted to run out soon because the revenues have declined dramatically.

3.1 Energy scramble at the disputed maritime border

For a long time, Timor Leste and Australia have had a dispute over maritime border points and the dispute has been protracted because it is very crucial and vital because it contains enormous oil and gas wealth which is contested by the two countries. Initially this issue involved Indonesia in agreeing on maritime boundaries in the Timor Sea in 1971. And at the same time, Timor, which still had the status of a Portuguese colony, had not yet resolved its maritime boundaries with Australia, leaving a slight 'gap' which was later termed with the Timor Gap.



Picture 1. Oil and Gas field in maritime border area between Timor Leste-Australia

Source: <http://www.laohamutuk.org/Oil/LNG/app1.htm>

Until March 6, 2018, the agreement on the Maritime Zone in the Timor Sea was officially signed by the governments of Australia and Timor Leste as a sign of the end of the conflict

which took a very long time through the Conciliation Commission based on the 1982 Law of the Sea Convention. In the process of resolving the dispute, there is an asymmetric power structure in resolving disputes between Australia and Timor-Leste regarding maritime boundaries in the Timor Sea. The conciliation between two states shows that the cooperative mechanism in dispute resolution is suitable for resolving disputes between small and large countries [5]. Initial efforts to resolve the boundary delimitation dispute between the two countries involved negotiations on three agreements: the Timor Sea Treaty in 2002, the Greater Sunrise Agreement in 2003, and the Treaty of Certain Maritime Arrangements in the Timor Sea (CMATS) in 2007. The next stage of litigation involved the International Court of Justice (ICJ) and two arbitrations under the Timor Sea Treaty, all initiated by Timor-Leste. The conciliation was successful, although there remain several significant practical issues—such as the location of processing facilities and pipelines related to the Sunrise deposit—that need to be resolved before exploitation of the Greater Sunrise deposit can proceed.

Picture 1 shows the oil and gas fields located in the maritime border area between Timor Leste and Australia. All of Timor-Leste's oil and gas production now takes place in the JPDA (Joint Petroleum Development Area).

There are several oil refinery points and the companies that operate them located in the Timor Gap or the water area between Timor Island (Indonesia and Australia), namely: Laminaria-Corallina oil field[6].

It started producing oil in late 1999 and is managed and operated by the Woodside, Shell and BHP companies.

1. Cockatoo-Eagle

Managed by the cooperation of Australia and Indonesia, when this field was explored there was an income of around 50 million US dollars which was shared between Australia and Indonesia when Timor Leste was still an Indonesian colony. This field produces oil and gas products and is explored by the ConocoPhillips company.

2. Bayu Undan

The Bayu Undan field, which is in southwest Timor Leste and has been explored and produced oil by the company ConocoPhillips since 2004, has become the country's largest source of income since oil and gas production began in 2006. Until 2022, the Bayu Undan field has contributed around USD 23 billion for Timor Leste's income.

3. Greater Sunrise

The Greater Sunrise Field. It is explored by Woodside Australian Energy, Shell, and Osaka Gas. This field is one of the most strategic and important assets in Timor Leste as well as the field with the highest oil and gas content in Timor Leste compared to other fields. Since the maritime border agreement has not been ratified in 2018, Australia is alleged to have received millions of dollars per month from oil revenues that should rightfully belong to Timor-Leste. For Timor Leste, the income from Greater Sunrise will

really help the country. This is because oil and gas resources in the Banyu Udan field are predicted to run out in 2022, so Timor Leste wants to use a median line approach in determining the maritime boundaries of the two countries so that part of the area falls within Timor Leste territory.

The oil and gas fields that are most heavily discussed and are the main dispute between the two countries are The Sunrise and Troubadour gas fields, collectively known as Greater Sunrise. The problem with the Sunrise field is that it is located both in the JDA and in the disputed sea area. Henning Gloystein and Sonali Paul's report [7] states that these oil fields lie beneath waters 100 to 600 meters deep, making them shallow to medium-deepwater developments. The fields were discovered in 1974 and, according to Woodside, hold around 5.13 trillion cubic feet of gas, the equivalent of more than a third of current annual global LNG consumption. The Epoch Times [2] also stated they are located approximately 450 kilometers northwest of Darwin and 150 kilometers south of Timor-Leste. It is estimated to be worth around \$70 billion (US\$50 billion) holding around 226 million barrels of gas. (At current market prices, the LNG would be worth almost \$50 billion. Like most gas fields in the wider region, including Papua New Guinea's and Australia's huge liquefied natural gas (LNG) exports facilities, Greater Sunrise also contains significant amounts of condensate, an ultra-light form of crude oil. Its 225.9 million barrels of condensate reserves at current market prices would be worth over \$15 billion. Actors' company: The partners in Greater Sunrise are Australia's Woodside, U.S. firm ConocoPhillips COP.N, Anglo-Dutch Royal Dutch Shell RDSa.L and Japan's Osaka Gas 9532.T.

The scramble started by struggling over the oil-gas pipeline. After 2016 or 2018 Under the terms of the deal, East Timor will get 70 percent of revenues if processing takes place in East Timor, and 80 percent should the gas be piped to Australia. That compares with an equal share (50:50) under a 2006 agreement between Dili and Canberra. However, the agreement signed on Tuesday lays out just two options -- piping the gas either to East Timor or Australia. Timor Leste insisted that oil and gas exploration in the area must be processed by Timor Leste. The justification is Dili has long pressed for the gas to be processed in East Timor, looking to generate thousands of jobs in construction and once developed, in the lucrative oil and gas processing, storage, transport and petrochemical industries. However, Australia has existing gas infrastructure and an experienced workforce, making it the industry's preferred location. Even today, the pipeline is far from being ready to provide Timor-Leste with the needed resources. Woodside continues to deny the nation's demands to develop the pipeline from Timor-Leste's shores, rather than Australia's Darwin coast. Despite a clear understanding that the prosperity of the island depends on not just the oil and gas returns, but the "second-order economic and social benefits" derived from the consequential workforce required to undertake the project, Woodside is relentless in its denials—such is the egalitarian Australian culture Ratcliffe [8].

The second scramble or struggle is fighting over investors. The latest development now is that Timor Leste is considering bringing in new players as an alternative, namely China, South Korea and Japan. Reuters reported by Gloystein, Paul [7] that Mr. Ramos-Horta said

that his government viewed the pipeline as part of the country's national strategic goal and, in September 2022, used Beijing as a bargaining chip should Australia's Woodside Energy continue its preference to direct gas to Darwin. The East Timorese president has since backpedalled on this statement, saying that he will likely first seek funding from Indonesia and then look to South Korea and Japan, but has urged Australian PM Anthony Albanese to publicly support the development of a gas pipeline in the Timor Sea. At the same time, Mr. Ramos-Horta argued that his country would be on a "financial cliff" if the Greater Sunrise project is not operating within the next 10 years. Currently, both countries are in talks to finalize a production sharing contract with the Sunrise joint venture partners and are aiming for terms to be settled by November. The treaty signing in New York on Tuesday marked the first.

3.2 Environmental Problem: Oil Spill of Montara Explosion

There is an impact on environmental damage due to the abundance of oil in the Timor Leste maritime region. One of the environmental impacts of oil and gas exploration in Timor Leste waters is the explosion incident at the Montara oil refinery, causing the waters of the Timor Sea to be polluted with crude oil and spreading from the south to the north of the area. The government has filed a separate claim for compensation for the explosion incident, citing fears over an oil spill into Timor Leste's territorial waters. Indonesia believes that the impact of water pollution pollutes its waterways as well.

On August 21, 2009, the Montara oil refinery in the Northwest Atlas Block of Timor exploded and caused a marine pollution impact of around 90,000 square kilometers in the waters of the Timor Sea. The Timor Sea polluted with crude oil and spread from south to north. Quoted in a book entitled "The Timor Sea scandal: a Canberra-Jakarta political-economic barter?" by Tanofi F (2008) says that there is an increasing range of pollution from crude oil, gas, condensate, and lead in Montana's field areas. This is certainly one of the fatal impacts of the oil fields in Timor Leste. Indonesia also claims that the impact of water pollution also pollutes Indonesian waters. However, in fact, Indonesian waters were not affected by the Montara oil explosion as proven by scientific evidence from the PTTEP (PTT Exploration and Production) company.



Image 2. Oil Spill Tragedy of Montara, Timor Sea

Source: <https://www.indonesiawaterportal.com>.

The West Timor Care Foundation announced its intention to submit a separate claim for compensation for the explosion incident. Followed by the President of Timor Leste, José Ramos-Horta, who at that time also stated Timor Leste's intention to file a claim for compensation due to his concerns about an oil spill that could enter Timor Leste's domestic waters. President José said that if there is damage to Timor Leste waters, then compensation from Australia and the oil rig owner from Thailand will pay the compensation. The Australian government then plans to hold discussions with Timor Leste regarding any concerns about the incident that occurred. However, the PTTEP company then issued a statement and evidence from a scientific university in collaboration with The University of Queensland and Monash University stating that the oil explosion did not reach the two countries and that the flora and fauna around the sea area of the Montara oil explosion showed that the results were safe and not significant due to the impact. explosion occurred. This then became the basis for claims for compensation for countries around the Montana oil boom.

4 Conclusions

This study indicates that Timor-Leste is in a less secure energy condition when assessed using the idea of energy security, i.e., less secure in terms of availability in the maritime border area and less secure in terms of environmental damage. Both impacted Timor-Leste economically, politically, and environmentally. Energy issue in Timor Leste is still developing along with the increasingly difficult challenges faced by Timor Leste as a country that is rich in energy but makes it so dependent that its wealth is like a double-edged sword: profitable but also potentially detrimental. Further study needs to analyze how the government settles those problems by using energy policies, both internally and globally, in connection with its international ties. Further research necessitates an in-depth study of the government's policy for ensuring energy security, which includes energy diplomacy and collaboration with other international actors regarding non-renewable energy sources.

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