About Sustainalytics

Sustainalytics supports investors around the world with the development and implementation of responsible investment strategies. The firm partners with institutional investors that integrate environmental, social and governance information and assessments into their investment decisions.

Headquartered in Amsterdam, Sustainalytics has offices in Boston, Bucharest, Frankfurt, London, New York City, Paris, Singapore, Timisoara and Toronto, and representatives in Bogotá, Brussels, Copenhagen and Washington D.C.. The firm has 180 staff members, including more than 100 analysts with varied multidisciplinary expertise and thorough understanding of more than 40 industries. In 2012 and 2013, Sustainalytics was voted best independent sustainable and responsible investment research firm in the Thomson Reuters Extel’s IRRI survey.

Acknowledgements

Sustainalytics would like to acknowledge the contributions of former analyst and commodities expert Jungho Park. Her research and expertise provided valuable insight on the impact of environmental, social and governance trends in South East Asia’s commodities market.
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Executive Summary

In May 2014, Sustainalytics organised its first Corporate Access Field Trip: ESG on the Ground with a special focus on investing in commodities in Southeast Asia (see Box 1). Drawing on the insights gained from the meetings and site visits, this report presents the key environmental, social and governance (ESG) risks associated with the overall value chain of four key commodities in Southeast Asia: palm oil, coal, tin, and oil and gas. The ESG performance of selected major Asian players for these commodities is also assessed. The key takeaways from our meetings with principal players in the commodity space are listed below:

1. **Commodity production and trading hub:** Southeast Asia has become a vital area for the trade of energy, mining and agricultural commodities. Located between the three Asian giants (China, Japan and India), it is ideally placed to benefit from the growing regional trade in commodities. Strategically located in the region, Singapore has become the natural hub to facilitate trade between the commodities producing countries such as Indonesia and Malaysia, and the large consumers of commodities in the region, such as China, and beyond. However, with weak regulations, the region is exposed to the environmental and social impacts of controversial shipbreaking. (See “Appendix 5: Controversial Shipbreaking: New regulation proves to be a law without teeth” on page 35 for details).

2. **Geopolitical risks:** ASEAN countries rely primarily on each other as trade partners. China, the biggest commodities consumer in the world, is the second largest trade partner for ASEAN. However, China’s claim of the South China Sea and its control of the upper Mekong River has sparked political tension in the region that may affect trade ties.

3. **Palm oil:** Producers are gradually embracing sustainable production practices. However, companies need to proactively engage with smallholder farmers and avoid the controversial slash and burn practices. An increasingly environment-conscious middle class coupled with regulations and the enforcement of penalties for environmental non-compliance are expected to increase reputational and regulatory risks to companies operating in the region. We consider related ESG risks to be highest for Kuala Lumpur Kepong Bhd (KLSE:KLK) and IOI Corp.Bhd (KLSE:IOICORP) and lowest for Sime Darby Berhad (KLSE:SIME).

4. **Mineral exports:** Indonesia’s ability to supply sufficient tin to the global market is threatened by the government’s mineral exports ban as well as public pressure to use Indonesia’s natural resources for the benefit of the local population. Large electronics companies are already looking for other suppliers for tin, focusing especially on South America.

5. **Electronic goods and the mineral supply chain:** With the increase in demand for electronic goods from the rising middle class in Asia, the demand for tin is expected to grow over the next few years. Industry giants including Samsung and Apple have come together to assess, engage and address environmental and social risks related to tin production on the Indonesian islands of Bangka and Belitung, which are key sources of tin in this region. This collaboration is a positive step towards ensuring the adoption of sustainable practices across the supply chain.

6. **Dependence on coal to continue:** Coal is expected to remain the mainstay fuel for electricity generation in Asia during the next decade. With pressure from NGOs and other local stakeholders, mining operations are facing increased scrutiny with regards to environmental (GHG and air emissions) and health and safety risk management. Thus,
adoption of sustainable mining practices is imperative for ensuring long-term growth. We consider related ESG risks to be highest for PT Bumi Resources Tbk (ISE:BUMI) and PT Indo Tambangraya Megah Tbk (ISE:ITMG) and lowest for PT Adaro Energy Tbk (ISE:ADRO).

**Importance of oil and natural gas:** Oil and natural gas have been the top two primary energy sources in ASEAN’s fuel mix in the recent past and will continue to be in high demand over the next two decades. A majority of the oil and gas exploration activity in this region occurs off-shore, increasing company exposure to risks such as accidents and oil spills that can cause operational disruptions. In addition, some of the companies operating in this region have weak policies and programmes to combat bribery and corruption leaving them vulnerable to reputational damage due to controversial dealings with local governments. We consider related ESG risks to be highest for Petroleam Nasional Bhd. (Petronas) and lowest for Royal Dutch Shell plc (LON:RDSA and LON:RDSB).
Introduction

An increasingly dynamic region for commodities production and trading...

Over the last 10 years, Southeast Asia has become a vital area for the trade of energy, mining and agricultural commodities. The countries in the region are leading producers and exporters of commodities, including coal, tin, coffee, sugar, palm oil, cocoa, and rice. Malaysia and Indonesia are the world’s biggest producers of palm oil, together producing 54 million tonnes or 86% of the global palm oil production. Indonesia is the world’s fourth largest coal producer and the largest exporter of coal by weight exporting around 75% of its production in 2013. Vietnam is the world’s second leading coffee producer, and Vietnam and Thailand are two of the world’s biggest rice growers.

With a population of over 610 million, which has grown by 34% over the last two decades, Southeast Asia has seen its consumption of energy commodities increase by two-and-a-half times. Also, an increasingly affluent population and changes in dietary habits have increased the consumption of wheat, meat, and dairy products. (See “Appendix 4: ASEAN: Overview” on page 32 for details)

...which faces increasing ESG risks.

Population growth, economic growth and increasing urbanisation have propelled Southeast Asia into becoming one of the most dynamic trading regions in the world; however, these trends have also created a set of new and interlinked challenges for companies involved in the production and trade of commodities in the region.

Companies are increasingly in the spotlight due to the environmental and social impacts from their activities. Commodities production and processing are energy and water intensive activities and put local water resources under stress. When not managed properly, the use of fertilizers and pesticides in crop production and of chemical products in ore processing lead to localised pollution. Similarly, the environmental and health impacts of commodity use, such as the burning of coal for energy generation, are receiving significant public and media attention. As environmental consciousness increases across the region’s growing middle class and local governments enforce environmental regulations, companies operating in the region face increasing reputational and regulatory risks.

Furthermore, access to and exploitation of natural resources are also becoming a more pressing issue with important operational risks for companies. For example agriculture production yields may be impacted by increased soil and water pollution, and a decrease in productive land availability – a growing issue in the region.

About the report:

This report presents the key environmental, social and governance (ESG) risks associated with the overall value chain (production, processing and trading) of some key commodities in Southeast Asia: palm oil, coal, tin, and oil and gas. The ESG performance of the major players for each of the key commodities in the region (except tin) is also assessed. This assessment integrates the information gathered from the meetings and site visits organised during the corporate access trip. An overview of the corporate access trip is provided in Box 1.
Box 1: ESG on the Ground: Corporate Access Field Trip Asia

ESG on the Ground was a one-week field trip in Asia focusing primarily on company site visits. This new service aims to enhance investors’ understanding of the ESG risks and opportunities related to a specific investment theme in Asia by witnessing, first hand, the day-to-day realities of companies’ operations.

From May 12 to May 16, 2014, eight representatives from five asset management companies and one pension fund participated in a corporate access field trip focusing on commodities in Southeast Asia. During the trip these investors met 12 companies involved in the production and processing of palm oil, gold, oil and gas, rubber, and coal in Malaysia, Indonesia and Singapore.

The group of investors had the unique opportunity to further their understanding of the key environmental, social and governance risks these companies face on the ground by visiting six companies’ operations including an oil palm plantation (Sime Darby Berhad [KLSE:SIME]) in Malaysia and a gold and silver mine (G-Resources) in Indonesia. In Singapore, the group visited an oil and gas refinery (Royal Dutch Shell plc [LON:RDSA and LON:RDSB]), a vertical farm (SkyGreens), and a fish farm (Rong Yao) as well as a wastewater treatment plant (Public Utilities Board).

In addition to these site visits, the group of investors met with representatives from the following companies: the palm oil companies Golden Agri-Resources (SGX:E5H) and Wilmar International (SGX:F34); the coal company Adaro Energy (ISE:ADRO); the rubber company GMG Global (SGX:5IM); the shipping company Neptune Orient Lines (SGX:N03); and the Singapore Exchange (SGX).

“One of the best if not ‘the’ best field trip I have ever had. I have had many.”
— Xavier Desmadryl, Global Head of ESG Research and PRI at HSBC Global Asset Management

“Very satisfied, will definitely recommend this trip to my fellow employees.”
— Elisa Vacherand, Head of CSR financing and investment policies, BNP Paribas

If you are interested to learn more about our Corporate Access Trip services or upcoming trips, please contact Loic Dujardin: loic.dujardin@sustainalytics.com
Palm Oil
Demand and Supply Dynamics

Palm oil is the most productive vegetable oil. In 2012, 53 million tonnes of palm oil were produced, which accounts for more than one-third of the world’s total vegetable oil production. According to the OECD and the Food and Agriculture Organization of the United Nations (FAO), the global production of vegetable oil is expected to increase by 28% by 2020. This increasing production of palm oil is backed by strong demands from both for food uses and non-food uses. Across India and China, which together account for about 30% of global consumption of palm oil, populations are increasing and the standard of living is on the rise. This trend is also observed in certain Southeast Asian countries. For example, Indonesia is now facing increased domestic demand. Developing countries are expected to consume an average of 19 kg of food-use vegetable oil per capita annually by 2022, which is 12% higher than current consumption. While developed countries as a group show a stable consumption of vegetable oil, demand for non-food uses, such as biodiesel production, is projected to grow. The share of vegetable oil used for global biodiesel production is expected to increase from 12% in 2012 to 15% in 2022.

Figure 1: Palm oil producing regions in Southeast Asia
Key ESG Risks

In the last decade, the rapid development of oil palm plantations has not only led to the destruction of rainforests and peatlands, but it has also had extensive negative impacts on indigenous people and smallholder farmers. Arguably, since Greenpeace’s high profile campaign against Nestlé in 2009, civil society groups have targeted their campaigns against various industry players. The palm oil companies we met during this corporate access trip and some other leading Asian palm oil producers are highly exposed to the following key ESG risks among others:

Environmental — Environmental impacts include deforestation and greenhouse gas emissions. For example, in June 2013, slash-and-burn practices employed in Sumatra, Indonesia to make way for oil palm plantations caused record-breaking trans-boundary haze in Malaysia and Singapore. The Pollutant Standards Index (PSI) breached 400, which is considered hazardous. (See Figure 2). The fires that caused the haze were detected in concessions of eight companies’ palm plantations, including Sime Darby and Kuala Lumpur Kepong.

Social risks — The negative social impacts of palm plantations include poor working conditions and conflicts between displaced and disenfranchised groups, who may have customary land rights. A report related to poor working conditions at Kuala Lumpur Kepong’s plantation in Indonesia in 2013 also elaborated on social issues like bonded labour and lack of health and safety awareness at the plantations.

Governance risks — Corruption and bribery are chronic issues related to governance in Indonesia. A recent report by Mongabay, a web site that publishes news on tropical rain forest conservation, revealed that in Indonesia nearly 300 regional heads had been charged with corruption during the last decade. The report states that many of the corruption cases are linked to corporate land concessions, including those of palm oil companies.
Box 2: Sime Darby

About of the company

Sime Darby is engaged in oil palm and rubber plantation, industrial equipment, motors, property, energy and utilities with operations in more than 20 countries. The company has palm plantations in Malaysia, Indonesia and Liberia. It manages approximately 525,000 hectares of planted land. Sime Darby sources 65% of its palm oil from its own plantations and 35% from external growers. Plantations represented 41% of the group’s profits in 2013. Malaysia, Indonesia, India and China are the group’s largest markets.

Brief overview of the site visit

On May 14, Sustainalytics and the participants to the corporate access trip visited Sime Darby’s Carey Island Estate and Jomalina Refinery in Kuala Lumpur, Malaysia. Several meetings were held with company representatives including Head-In-Charge Plantation Sustainability & Quality Management; Head Sime Darby Jomalina; Head Sustainability Reporting & Carbon; Vice President Investor Relations; and Manager of Special Projects Carey Island. Based on our interaction with the company, the following key points were noted:

Insights gained from company visit/meeting:

1. While the group aims to achieve 100% Roundtable on Sustainable Palm Oil (RSPO) certification, there is no specific timeline put forward. Based on discussions with Sime Darby, we do not see this target as credible and are doubtful that it will be achieved in the next five years. The main reason being that there appear to be insufficient incentives to reach that goal. As the group stated, it sees RSPO mainly as a tool to manage reputation risks. Given that RSPO certification implies additional costs and there is no price premium for RSPO certification, the actual goal is more likely centred around meeting or slightly exceeding RSPO certification levels of key competitors. This situation may change if cost sharing solutions (i.e., a premium is paid) for RSPO, something Sime Darby is pushing for with its clients. In the end, we believe only once the market pays a sufficient premium for RSPO-certified oil, RSPO certification levels and related targets will become more ambitious.

2. In order to minimise GHG emissions, Sime Darby Plantation has installed a pilot methane-fired power plant in its Jomalina refinery. The Malaysian government supports the development of biogas technology and plans to deploy the technology to oil palm producers. Sime Darby’s biogas project is not scalable yet; however, when the company employs the biogas generation system at all of its refineries, it will save a significant amount of fossil fuel-based electricity and its reputation as a renewable energy leader will be enhanced.

3. Oil palm harvesting is labour intensive. It requires, on average, 1,500 workers per 10,000 hectares. While all of the workers at oil palm plantations in Indonesia and Liberia are local, Malaysian plantations have a combination of local and migrant workers from Indonesia. It is notable that the group has set a minimum wage for its employees; however, the company should also improve working conditions for its migrant workers and end questionable practices such as withholding workers’ passports, which is pervasive in Malaysia’s agricultural sector.

4. Sime Darby’s safety track record has been poor. Over the last three years, the number of fatalities has been relatively high, averaging seven per year. The company said it is aware of the issue and has detailed specific actions to address it. If effectively implemented, we believe that these actions would significantly improve safety performance. We believe closely tracking the number of fatalities over the next few years will be the best way to assess whether these measures are indeed effective.

5. In Liberia, Sime Darby Group signs Memoranda of Understanding with local stakeholders including traditional hierarchical groups (e.g., clans chiefs), groups of women, and groups of youth (e.g., ex-child soldiers) when developing new lands. To avoid the risk of encroachment on areas of cultural, religious and economic importance to local communities, the company has developed participatory maps to ensure that these areas are clearly marked. Sime Darby’s massive land acquisition in Liberia has been greatly criticised by local and international civil society groups. Seeking input from local stakeholders on the company’s pre-business development plan is considered best practice. The Group aims to expand its rubber business in Liberia as it is becoming a more attractive business proposition and is a step towards diversification. Investors should encourage the company to include stakeholder dialogue in all aspects of its business activities in Liberia.
Company Assessment

In this report, we review the risk exposure and the management preparedness of the five largest palm oil companies, in terms of estate size and Crude Palm Oil (CPO) production that are listed either on Bursa Malaysia or on the Singapore Stock Exchange. We evaluate the risks that palm oil producers are exposed to due to their geographical operations (classified as low, medium or high) and the management preparedness (categorised as weak, medium or strong) jointly to produce a single framework, assessing investment risk as low, medium or high as denoted by the size of the bubble. The bigger the size of the bubble, the higher the overall investment risk and vice versa. The assessment of risk exposure and management preparedness is based on four indicators (see “Appendix 1: Analysis Framework for Palm oil producers in ASEAN” on page 29). Relevant information is extracted from Sustainalytics’ Global Platform and complemented with selected exposure related-information from company annual reports, corporate responsibility reports, company websites and other third-party sources.

<table>
<thead>
<tr>
<th>Management Preparedness</th>
<th>Risk Exposure</th>
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<tbody>
<tr>
<td>STRONG</td>
<td>Sime Darby Berhad (KLSE:SIME)</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>Wilmar International Limited (SGX:F34)</td>
</tr>
<tr>
<td>LOW</td>
<td>Golden Agri-Resources (SGX:E5H)</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>Kuala Lumpur Kepong Bhd. (KLSE:KLK)</td>
</tr>
<tr>
<td>LOW</td>
<td>IOI Corp. Bhd (KLSE:IOICORP)</td>
</tr>
</tbody>
</table>

Overall Investment Risk: Low, Medium, High

Figure 3: Palm oil producers Investment Risk Level

As shown in the Figure 3:

- Palm oil companies in the ASEAN region generally face medium to high investment risks due to the nature of their business activities.
- Based on our assessment, Sime Darby Berhad (KLSE:SIME) shows the strongest management preparedness to tackle ESG risks relevant to this sector.
- Of companies assessed above, Kuala Lumpur Kepong Bhd (KLSE:KLK) and IOI Corp. Bhd (KLSE:IOICORP) demonstrate relatively weak preparedness to tackle ESG risks and are more vulnerable to operational disruptions and reputational damage due to issues such as conservation of forests and involvement in bribery and corruption.
Recommendations to Investors

In order to minimise the risks elaborated above, investors should address proactively the following questions with their investees:

- Does the company have a formal forest policy that commits to no deforestation, no peatland destruction and no burning?
- Does the company have programmes to implement its forest policy?
- Does the company have a human rights policy that includes zero exploitation?
- Is the human rights policy applicable to all type of workers within the company and its subsidiaries, business partners and suppliers?
- Does the company have a formal land ownership policy that includes free, prior and informed consent?
- Does the company have an anti-bribery and corruption policy?
- Does the company have a whistleblower programme in place?
- Are clients ready to pay a premium for RSPO-certified palm oil?
Coal

Today, coal is used as a fuel to generate more than 40% of world’s electricity. Coal is low cost, accessible and easy to transport, store and use. Because of these features, coal is projected to be a mainstay in the future fuel mix.

Demand-Supply Dynamics

The International Energy Agency (IEA) notes that the ten members of ASEAN, along with China and India are shifting the centre of gravity of the global energy system towards Asia. Energy demand in Southeast Asia has expanded by two-and-a-half times since 1990, its rate of growth among the fastest in the world.10

Medium rank coal with a calorific value of 4,000 kcal/kg to 4,500 kcal/kg constitutes the majority of Indonesian coal reserves. China is the world’s top coal producer, consumer, and importer and accounted for about half of global coal consumption. Chinese policies are expected to have a major impact on the global coal market as the country will account for nearly 60% of new global demand over the next five years. In the 2014 Chinese Government Work Report,11 Premier Li Keqiang declared that China will cap total energy consumption, shut 50,000 small coal-fired furnaces, clean up major coal-burning power plants and take six million high-emission vehicles off the roads. The Chinese government’s efforts to encourage energy efficiency and diversify electricity generation will slow the global increase in demand for coal.

Indonesia is the world’s fourth largest producer of coal and the largest exporter of thermal coal.12 With Indonesia having a major influence on the global coal market, it is important to note some of the key factors that may have an impact on coal prices in the near future:

- **Impact of Indonesian coal thefts on world coal prices**
  During 2013, coal thefts across Indonesia were estimated by the government to be around 50 million to 60 million mt/year. Illicit mining at the Arutmin mine, Indonesia, which is owned and operated by Bumi Resources Tbk PT (ISE:BUMI) is leading to losses estimated at two million metric tonnes of coal each month (or USD 150 million worth of coal). These illegal shipments are not only undermining global prices for thermal coal, already near a four-year low (see: Figure 5), but are also depriving the government of revenue from royalties of 3% to 13.5% imposed on coal produced in the country.
Most Indonesian miners use barges for transporting coal along a network of rivers before loading it into bigger vessels. In a bid to curb illegal coal exports, the Indonesian government has announced plans to build 14 dedicated coal terminals on the islands of Kalimantan and Sumatra. By restricting the number of terminals allowed to export coal, the government seeks to closely monitor and possibly restrict coal exports.

By restricting the number of terminals allowed to export coal, the government seeks to closely monitor and possibly restrict coal exports.

Figure 5: Coal price fluctuations

- **Impact of the Indonesian parliamentary and presidential elections on coal exports**
  Pressure from civil society to make optimal use of Indonesia’s natural resources for the benefit of the local population had a strong influence on this year’s presidential elections in July and is likely to affect the environment in which coal companies operate. In addition, the government already has plans to increase the proportion of coal in the country’s fuel mix via domestic electrification efforts. With more coal-fired power plants being built to address energy poverty in Indonesia, the proportion of coal destined for the export market could drop from the current 80%, thus impacting the coal supply in the near future.

**Key ESG risks**

As per a recent analysis, Greenpeace claims that coal exports, are actually dragging down Indonesia’s economy rather than benefitting it. Although there has been a boom in the coal mining industry over the last decade, little has been done to improve the lives of locals. In fact, the report suggests that the excess focus on coal exports is restricting the country’s market growth and capital investment, and having an impact on the local communities that are reliant on agriculture, fisheries, wetlands, streams, and forested lands. The coal mining industry within Southeast Asia is highly exposed to the following key ESG risks:

**Environmental – GHG Emissions, air and water pollution**

Companies in the coal mining industry face considerable exposure to environmental issues. Mining, particularly open pit mines, produces significant amounts of waste in the form of tailings, overburden and waste rock, which need to be managed during the operational phase and sometimes after closure. Tailings generated in the mining process are of particular concern to NGOs, regulators, and local communities. If poorly managed,
tailings can significantly impact a company’s reputation and balance sheet. And, in light of the stranded asset debate, the coal mining industry is also facing a number of challenges that are threatening its very existence.

Social – Health and safety, labour management and community relations
The exposure to social risks for these companies primarily involves employee and contractor health and safety, labour management, and community relations. If poorly managed, health and safety risks can result in significant reputational and financial impacts, curtailing a company’s ability to attract workers in a tight labour market. Mining activities can have a significant impact on the livelihoods of local community members, an important stakeholder for any mining project. Hence, it is important that community members are consulted at each and every stage of project development and operation.

Governance – Transparency in transactions
As evidenced by Transparency International’s 2013 Corruption Perceptions Index, coal mining jurisdictions in Indonesia (ranked 114 out of 177 countries) and Thailand (ranked 102 out of 177 countries) are perceived to be among the most corrupt in the world. Companies operating in these countries face an increased risk of becoming involved in bribery and corruption. As a result, it is important for companies operating in these regions to have strong policies on bribery and corruption, as well as whistleblower protection mechanisms.

On a positive note, in October 2010, the Indonesian government adopted the Extractive Industries Transparency Initiative (EITI) standard which promotes government revenue transparency and accountability in the extractive sectors (oil, gas, and mining). However, the country has not yet met all requirements and is still classified as an EITI candidate country.

Box 3: Coal Bed Methane: The Untapped Reserve
Coal bed methane (CBM) gas extraction is the recovery of methane from an un-mined coal seam prior to the initiation of mining processes. The methane is extracted for two primary reasons:

- To reduce the risk of explosion and mitigate methane emissions to the atmosphere once the process of extracting the coal begins.
- To recover methane for its energy production potential, regardless of whether the coal will actually be extracted.

Indonesia’s CBM reserves, estimated at 453 trillion cubic feet (Tcf), are the sixth largest in the world and are more than double the country’s natural gas reserves. These CBM reserves are located mainly in the Sumatra and Kalimantan provinces.

The gradual fall in Indonesia’s crude oil production coupled with an increase in the country’s energy demand, and boosted by an ever-increasing middle class, could lead to an energy shortage by 2022. Hence, the Indonesian government’s national energy policy pushes for a larger share of CBM in the country’s energy mix. The government has set a CBM production target of 500 million metric cubic feet per day (Mmcf/d) by 2015, 1 billion cubic feet per day (Bcf/d) by 2020, and 1.5 Bcf/d by 2025.

With CBM production set to rise in the future, we evaluate the impact of increased CBM activity from an ESG perspective:

Environmental Impact
- Reducing GHG emissions: CBM gas extraction and use leads to lower methane emissions to the atmosphere than the baseline scenario in which the methane trapped in the coal seam would leak out into the atmosphere due to (future)
mining activities. Also, replacing coal with extracted CBM will result in lower GHG emissions given CBM’s lower emission factor.

- Water contamination: Some of the CBM wells receive hydraulic fracturing (fracking) treatments for enhanced gas extraction, which raises concerns related to the treatment and disposal of millions of litres of contaminated water coming from fractured wells.

Social Impact:
- Improving occupational health and safety: As methane is an explosive gas, leakage can cause mine explosion. In certain gassy mines having more than 10 cubic meters of methane released per tonne of coal production, extraction of CBM prior to mining reduces the risk of explosion and hence improves worker safety.

### Box 4: PT Adaro Energy Tbk (ISE:ADRO)

#### About the company
PT Adaro Energy Tbk (PT Adaro) is an Indonesia-based integrated coal mining company and is one of the largest single-concession coal producer in the southern hemisphere. The company and its subsidiaries are engaged in coal mining and trading, mining contractor services and other related services, such as coal infrastructure and logistics. During 2013, the company produced 52.3 million tonnes (Mt) of coal.

#### ESG Preparedness, Disclosure and Performance
PT Adaro has moderate ESG policies and programmes, reflecting an awareness of related risks and impacts. The company provides significant disclosure on environmental and social issues that align with best practice. PT Adaro is not implicated in any significant events and thus does not pose abnormal risks to investors.

#### Insights gained from company visit/meeting:
On May 14, Sustainalytics and the participants of the corporate access trip had a conference call with Mr. Cameron Tough, Head of Investor Relations at PT Adaro. Based on our interaction with the company, the following key points were noted:

1. The company produces coal with low sulphur content (Envirocoal) that causes lower air emissions when combusted.
2. Having a vertically integrated business model helps PT Adaro to reduce the cost of coal production.
3. As PT Adaro’s production share in Bhimasena Power’s two gigawatt thermal power plant, which is implementing the
highly efficient ultra-supercritical technology, is low (34%), PT Adaro’s exposure to environmental/regulatory risks is lower than its peers.

4. The company realises the importance of managing community relations and facilitates community development initiatives, which alleviates the risk of work stoppages due to not managing the expectations of the local communities sufficiently.

5. PT Adaro manages its water use adequately by implementing various activities like building settlement ponds to capture and treat rainfall run-off water.

Company Assessments:
In this report, we review the risk exposure and management preparedness of five listed companies that are potential coal mining related risk bearers in the Southeast Asia region. These companies have operations located in some of the more sensitive but less regulated regions like Thailand and Indonesia. We evaluate these companies based on their risk exposure due to their geographical operations (classified as low, medium or high) and management preparedness (categorised as weak, medium or strong) jointly to produce a single framework, assessing investment risk as low, medium or high as denoted by the size of the bubble. The bigger the size, the higher the overall investment risk and vice versa.

The evaluation of exposure and preparedness is based on six indicators (see “Appendix 2: Analysis Framework for Coal producers in ASEAN” on page 30). Relevant information was extracted from Sustainalytics’ Global Platform and complemented with selected exposure-related information from company annual reports, corporate responsibility reports, company websites, and other third-party sources.
As shown in the Figure 7:

- Companies in the ASEAN region that are primarily involved in coal mining activities generally face medium to high investment risks due to the nature of their business activities.
- Based on our assessment, among the companies assessed, the Indonesian company PT Adaro Energy Tbk (ISE:ADRO) demonstrates relatively strong policies and programmes to tackle ESG risks relevant to this sector and, hence, has the lowest investment risk in this set.
- PT Bumi Resources Tbk (ISE:BUMI) and PT Indo Tambangraya Megah Tbk (ISE:ITMG) demonstrate relatively weak preparedness to tackle these risks and are more vulnerable to operational disruptions and reputational damage due to issues such as GHG emissions and involvement in bribery and corruption.

Recommendations to Investors

Coal mining operations face increased exposure to various ESG issues that include, among other things, reduction in GHG emissions, management of employee and contractor safety, and transparency in dealings with governments. With a relatively low level of corporate ESG disclosure from companies in ASEAN, investors looking to assess company risk and performance need to engage with their holdings using more proactive methods such as on-the-ground visits. Some of the practices that should be adopted by coal mining companies include:

- Implementation of programmes to monitor and limit the waste/effluents from mining and processing operations especially related to tailings.
- Extension of health and safety programmes to contractors and including contractor data in their metrics like loss time injury rates (LTIR) and fatalities.
- Labour policies in line with International Labour Organisation conventions specifically allowing freedom of association.
- Strong mechanisms to prevent bribery and corruption along with protection for whistleblowers.
Tin

Tin is a relatively scarce element with an abundance in the earth’s crust of about two parts per million (ppm), compared with 94 ppm for zinc, 63 ppm for copper, and 12 ppm for lead. Today, about one-half of the world’s tin comes from Southeast Asia, with Indonesian islands Bangka and Belitung supplying a majority of it.

Table: Leading tin producing companies in 2013 (in '000 metric tonnes)

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<tr>
<th>Company</th>
<th>Production Output (‘000 metric tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yunnan Tin (China)</td>
<td>70.37</td>
</tr>
<tr>
<td>Malaysia Smelting Corporation</td>
<td>32.67</td>
</tr>
<tr>
<td>(Malaysia)</td>
<td></td>
</tr>
<tr>
<td>Minsur (Peru)</td>
<td>24.4</td>
</tr>
<tr>
<td>PT Timah (Indonesia)</td>
<td>23.72</td>
</tr>
<tr>
<td>Thaisarco (Thailand)</td>
<td>22.99</td>
</tr>
<tr>
<td>Yunnan Chengfeng (China)</td>
<td>18.3</td>
</tr>
<tr>
<td>Guangxi China Tin (China)</td>
<td>11.87</td>
</tr>
<tr>
<td>EM Vinto (Bolivia)</td>
<td>11.25</td>
</tr>
<tr>
<td>Metallo Chimique (Belgium)</td>
<td>10.34</td>
</tr>
<tr>
<td>Gejiu Zi-Li (China)</td>
<td>6</td>
</tr>
</tbody>
</table>

Figure 8: Leading tin producing companies in 2013 (in ‘000 metric tonnes)

Tin is mainly used in alloys, often as solder to connect components in electronics. The European Union’s (EU) Restriction on Hazardous Substances (RoHS) directive prohibits the use of lead, so higher percentages of tin and other metals must be used to replace lead in solder. The demand for tin is expected to rise as more electronics are purchased by the growing middle class in developing economies.

Figure 9: Average tin content in various products

Demand-Supply Dynamics

China is the world’s largest tin miner, followed by Indonesia. A majority of Indonesian tin is exported to Singapore (58% by value). Moreover, in the past few years, due to the greater global demand for tin, Malaysia has increased its focus on tin mining with the country’s tin production increasing in 2012 after many years of decline. In this section, we evaluate the the various factors influencing the demand-supply dynamics in the global tin market.
Impact of Indonesian government’s mineral exports ban

A law enacted in Indonesia in 2009 banning exports of unprocessed minerals from the country took effect on January 12, 2014. As per Government Regulation No. 1/2014, the policy to ban raw material exports is designed to develop higher value-added downstream industries and aims to generate more benefits from the mining wealth to the nation. In addition to the ore export ban, in order to force mining companies to refine the concentrates, Indonesia has imposed an export tax of between 20% and 25% for mineral concentrates which will progressively rise each year until it reaches 60% in 2016. Coal, however, is not included on the restriction list. Amidst protests from the broader industry players and other mixed views on the perceived benefits of these laws for the Indonesian economy, the World Bank has estimated that these regulations could negatively impact the country’s net trade to the tune of USD 12.5 billion between 2014 and 2017 due to the loss of export revenue and the increase in capital goods’ imports for enhancing local smelting capacity. With major political parties backing the export ban, it is unlikely that Indonesia’s next president would make major changes to the country’s controversial mining rules.

Due to China’s growing tin consumption and the Indonesian government’s mineral exports ban, the tin market is expected to see the fifth successive year of demand exceeding supply in 2014. The largest Indonesian tin player, PT Timah, has also predicted a shortfall in global tin supply due to the Indonesian government’s tightening of the export regulations. With an evident shortage of tin supply from Indonesia, companies like Apple and Samsung are looking for alternative sources. As the only major non-Asian tin producer, Peru’s Minsur SA is in a good position to expand production. The company’s San Rafael mine in Peru is the world’s largest, while Pitinga (Brazil) is the world’s largest (known) undeveloped tin deposit.

Malaysia: Growing focus on tin mining

Revenue from tin mining had contributed significantly to the socio-economic development of Malaysia during its formative years. During the 1960s and 1970s, Malaysia was one of the largest tin producers in the world and the industry attracted significant foreign direct investments. However, the tin industry collapsed in the late 1980s leading to mine closures, layoffs, and loss of shareholders’ funds. With several new and reopened tin mines projected to commence operations in the next few years, Malaysia could be ranked among the world’s prominent producers. In 2013, Malaysia Smelting Corporation Berhad was the world’s second largest tin producer.

Key ESG risks

Tin can be mined on land and dredged from the sea bed, which means tin mining can create health and safety issues for miners and significant environmental damage. Over the last few years, concerns over tin mining in Indonesia have increased, partly triggered by the publication of a report titled “Mining for Smartphones: the true cost of tin”26 by Friends of the Earth (FOE), an international environmental network. Companies in the tin mining sector (especially in Indonesia) are exposed to the following ESG risks:

Environmental – Land use and biodiversity:

The FOE report highlighted some key biodiversity-related issues like the choking of corals, sea grass and mangroves along with the reduction of fish and marine life in the region near Bangka and Belitung islands due to silt and sludge from tin mining boats. The report also points out
that forests and farmlands have been destroyed and soil fertility lost because the mined land has not been fully restored. While there are direct impacts on biodiversity in the region, these mining operations are also indirectly impacting the livelihoods of the local fishermen.

**Figure 10: Cratered landscape of a tin mine Bangka, Indonesia**

**Social – Health and Safety**
As pointed out by the FOE report, there have been numerous cases of workplace injuries and fatal accidents due to pit collapses in the region. In addition, reports of the use of child labour in unofficial mines are common. From this it can be concluded that that the companies operating in this region have not taken sufficient measures to strengthen their safety mechanisms and ensure protection of their employees and contractors.

**Governance – Transparency in transactions**
As discussed in the coal section, the risk of being involved in bribery and corruption remains high for all the tin mining companies based in Indonesia. However, these risks are relatively lower for companies operating in Malaysia, a country that is ranked higher (53 out of 177 countries) than Indonesia in Transparency International’s 2013 Corruption Perceptions Index.

**Industry initiative: IDH, the Sustainable Trade Initiative**
FOE called upon all major electronics companies to address social supply chain standards and ensure compliance of these standards. In response, a majority of these companies stated their commitment to address this issue through their work with the Electronics Industry Citizenship Coalition (EICC).

IDH aims to accelerate sustainable trade by enabling the formation of coalitions of multiple stakeholders, including leading companies, on certain relevant and pressing issues similar to the ones highlighted by the FOE report. In mid-2013, IDH convened members of the EICC (Apple, Blackberry, LG Electronics, Philips, Samsung, and Sony) and FOE to form the IDH Indonesian Tin Working group, which is responsible for exploring how its members can help address the environmental challenges of tin mining on Bangka and Belitung islands while at the same time boosting development and reducing poverty in the region. At the end of 2013, the working group had commissioned a situational analysis and sustainability
assessment of tin mining in the region. Based on the outcome of the study, the working group intends to engage with local stakeholders in order to understand their priorities and opinions on desirable pathways towards a more sustainable tin sector.

**Recommendations to Investors**

With an increased level of stakeholder awareness and scrutiny, there is more pressure on investors to ensure that tin mining companies as well as end users sufficiently address the various ESG risks to which they are exposed. As very few tin mining companies are publicly listed, we deem it suitable to instead discuss what end users like electronics and IT companies can do to mitigate these supply chain related risks. End users should, among other things, actively engage with tin mining companies on compliance with the following aspects:

1. **Social supply chain standards**: Whether the company has a policy or a code of conduct defining their expectations for working conditions at contractors and suppliers. This may include aspects like health and safety, minimum living wages, child labour etc.
2. **Supply chain audits**: What are the steps taken to ensure transparency in the supply chain via supply chain monitoring programmes? It is also important to check whether the company commits to cease business with its supplier in case of non-compliance with its standards.

Ensuring adequate due diligence on the above factors can help investors not only mitigate potential reputational risks that could arise from investments in companies operating in certain sensitive regions or business lines, but it can also assist them in engaging with the best performers to maximise long-term value.
Oil & Gas

Following the Asian financial crisis of 1997-98, ASEAN countries have experienced economic revival, increased urbanisation and industrialisation. These factors have together led to an increase in energy use in the region, though, on a per-capita basis, ASEAN still averages only half of global energy consumption. More than one-fifth of its population still lacks access to electricity. In line with the global trend, oil and natural gas currently meet a majority of the primary energy demand in ASEAN (see Figure 4 p. 13). The demand for oil in Southeast Asia is estimated to rise steadily from 4.3 million barrels per day (Mb/d) in 2011 to 6.8 Mb/d in 2035. Although, the demand for natural gas in Southeast Asia will increase from 141 billion cubic metres (Bcm) in 2011 to around 250 Bcm in 2035, its share in the energy mix remains flat through to 2035 due to higher gas prices.

Demand-Supply Dynamics

Southeast Asia is one of the most active regions for offshore oil and gas exploration in the world. While the region is a net exporter of natural gas, it is a net importer of crude oil. With a decline in mature fields and limited new, large prospects, oil production across the region is projected to fall by almost one-third in the period between 2011 and 2035, thereby increasing the region’s dependency on oil imports. Although IEA projects an increase in gas production, a reduced surplus of natural gas will be available for export as production is increasingly diverted to domestic markets.
<table>
<thead>
<tr>
<th>Year</th>
<th>Oil (MMBOPD)</th>
<th>Gas (TCF)</th>
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<tbody>
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<td>1990</td>
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<tr>
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<td>2.503</td>
<td>7.17</td>
</tr>
<tr>
<td>2020</td>
<td>2.352</td>
<td>8.79</td>
</tr>
<tr>
<td>2025</td>
<td>2.095</td>
<td>8.90</td>
</tr>
<tr>
<td>2030</td>
<td>1.871</td>
<td>9.11</td>
</tr>
<tr>
<td>2035</td>
<td>1.715</td>
<td>9.32</td>
</tr>
</tbody>
</table>

*Figure 12: Projected oil & gas production in ASEAN*

**Infrastructure: A key influencer to production growth**

Many of ASEAN’s gas production areas are located far from demand centres. Hence, the availability of transmission infrastructure or liquefied natural gas (LNG) liquefaction projects that help ship the gas to regasification terminals will be an important factor affecting production growth. As a part of the energy cooperation plan agreed upon by ASEAN member nations, the Trans ASEAN Gas Pipeline project aims to establish broader gas interconnections throughout the region. However, progress on the project has been slow due to a shortage of gas sources and huge investment requirements. As the distance over which natural gas has to be transported increases, the economics of using LNG over gas pipelines becomes more favourable as displayed in Figure 13 below. Gas prices and regional market dynamics have been evolving rapidly over the past few years and companies are looking at the option provided by LNG to switch supply sources as a distinct advantage over gas transportation pipelines.

*Figure 13: Indicative comparison of fossil fuel transportation costs*
Some countries in this region are considering plans to build floating liquefied natural gas (FLNG) facilities to develop remote resources and regasification terminals to receive imports.

**Box 5: Singapore: A gas trading hub**

In 2013, 75% of the global LNG demand was from the Asia-Pacific with Japan, China and India being some of the major importing countries. Most of the global LNG demand is expected to come from countries within the Asia-Pacific region over the next decade. Due to geographical limitations in the region, the pipeline trade is not expected to contribute much towards catering to the demand for natural gas. Leveraging its strategic geographical position within the region, Singapore brought a new LNG terminal on stream in May 2013 and has announced plans to become a natural gas trading hub for this region. Although there is growing opposition to the age-old oil-indexed LNG pricing mechanism in Asia, by establishing a trading hub, the economies in this region can develop an Asian price index for natural gas. This, however, may not necessarily lead to lower prices.

**Key ESG Risks:**

The oil and gas industry within Southeast Asia is highly exposed to the following key ESG risks:

1. **Health and Safety:** Companies that do not adequately prepare themselves by assessing their capability, setting safety procedures and guidelines, and regularly monitoring progress expose themselves to the risk of accidents. As many companies hire contractors, it is essential that safety guidelines as well as performance metrics include these workers.

2. **Bribery and Corruption:** As per Transparency International’s 2013 Corruption Perceptions Index, companies operating in Indonesia (ranked 114 out of 177 countries) and Thailand (ranked 102 out of 177 countries) face an increased risk of becoming involved in bribery and corruption. As a result, it is important
for companies operating in these regions to have strong policies on bribery and corruption, as well as whistleblower mechanisms.

3. **Well Control**: In order to avoid significant damage to both the environment and the company’s cashflows, it is important that companies have a well control management system in place which not only allocates safety responsibilities but also defines barrier standards.

4. **Emergency Response**: Investors should also look at companies’ contingency planning measures in order to ascertain their capability or preparedness to deal with emergencies, especially for off-shore operations.

**Company Assessment:**

In this report, we review the risk exposure and management preparedness of three listed companies that are potential oil and gas exploration and production related risk bearers in Southeast Asia region. We evaluate these companies based on their risk exposure due to their geographical operations (classified as low, medium or high) and management preparedness (categorised as weak, medium or strong) jointly to produce a single framework, assessing overall investment risk as low, medium or high as denoted by the size of the bubble— the bigger the size, the higher the overall investment risk and vice versa.

The assessment of risk exposure and ESG management preparedness is based on six indicators (see “Appendix 3: Analysis Framework for Oil and Gas exploration and production companies in ASEAN” on page 31). Relevant information is extracted from Sustainalytics; Global Platform and complemented with selected exposure-related information from company annual reports, corporate responsibility reports, company websites and other third-party sources.

As shown in Figure 15 below:

- Companies operating in the ASEAN region that are primarily involved in oil and gas exploration and production activities generally face medium to high investment risks due to the nature of their business activities.
- Based on our assessment, among the companies assessed, Royal Dutch Shell plc (LON:RDSA and LON:RDSB) has the strongest policies and programmes to tackle ESG risks relevant to this sector and hence has the lowest investment risk.
- Petronas demonstrates relatively weak preparedness to tackle these risks and is hence more vulnerable to operational disruptions and reputational damage due to issues such as oil spills, worker accidents and injuries.
With an increase in unconventional exploration and production, the use of contract labour and due to certain socio-political situations, oil and gas exploration and production operations face increased exposure to various ESG issues that include environmental management, monitoring and disclosure of spills, management of employee and contractor safety, and transparency in dealings with governments. With a relatively low level of corporate ESG disclosure from companies in ASEAN, investors looking to assess company risk and performance need to engage with their holdings using a more proactive approach including on-the-ground visits. Some of the practices that should be adopted by oil and gas companies operating in ASEAN include:

- Implementation of hydrocarbon spill prevention programmes in order to limit oil spills into the surrounding environment. This should also be coupled with proper disclosure mechanisms that allow the monitoring and analysis of a company’s performance in managing this risk.
- Implementation of best practice contractor management systems addressing pre-qualification, monitoring auditing, and disclosure of performance data.
- Labour policies in line with ILO conventions specifically allowing freedom of association and collective bargaining.
- Strong mechanisms to prevent bribery and corruption along with protection for whistleblowers.
Box 6: Royal Dutch Shell plc (LON:RDSA and LON:RDSB)

About the company

Shell is a global group of energy and petrochemical companies with operations spread across more than 70 countries in upstream (oil and gas exploration and development) as well as downstream (refining and marketing) businesses. The company runs more than 30 refineries and chemical plants globally and produces about 3.2 million barrels of oil equivalent (M boe) per day. As one of the leading deep-water exploration and production companies, Shell has a 33% interest in Gumusut-Kakap field that is located off the shore of Malaysia. Additionally, the company operates the Malampaya deepwater, gas-to-power project in the Philippines.

Insights gained from company visit/meeting:

On May 16, Sustainalytics and the participants of the corporate access trip visited Shell’s refinery and petrochemical plant located at Pulau Bukom, a small island south of Singapore. Based on our interaction with the company, the following key points were noted:

1. **Occupational Health and Safety – Performance**: With more than 15 million work hours without a single lost time injury (LTI) and no fatalities since 2008, the Pulau Bukom site is managing its high exposure to the risk of operational disruptions reasonably well.

2. **Labour management**: The company has made efforts to increase its gender diversity and hire local labour which are perceived as positive steps forward.

3. **Energy efficiency**: The plant has set targets to reduce energy consumption and also improve energy efficiency by installing a new ~ 50 mega watt natural gas-based cogeneration power plant. This not only ensures energy security but also provides efficiency benefits thereby reducing costs.

4. **Reducing SO\textsubscript{x} emissions**: The refinery and petrochemical plant has installed sulphur recovery machinery which can recover 99.5% sulphur that can be sold for downstream uses. Thus, we believe that the company’s management of its air emissions is strong.

5. **Water use**: Water scarcity is a key issue in Singapore and refining activities are highly water intensive. Shell has implemented some initiatives to mitigate this risk by using sea water for cooling. However, we did not come across any reduction targets for site-level fresh water use which falls short of best practices.
Appendix 1: Analysis Framework for Palm oil producers in ASEAN

Exposure
1. Nature of Company Business and Industry
2. Operations in high corruption risk countries and proximity to sensitive habitats

Preparedness
3. RSPO certification
4. Forest Policy
5. Human Rights Policy
6. Bribery & Corruption Policy
7. Whistleblower Programmes

* Information about the indicators 6 and 7 on Preparedness are directly drawn from Sustainalytics’ company profile database. For the remaining set of indicators, we complemented our research with selected information from company annual reports, corporate responsibility reports, company websites and other third-party sources.

** Detailed risk analysis for specific companies covered in this report can be obtained from Sustainalytics upon written request.
Appendix 2: Analysis Framework for Coal producers in ASEAN

Exposure
1. Nature of Company Business and Industry
2. Operations in high corruption risk countries and proximity to sensitive habitats

Preparedness
3. Environmental Management System
4. Programmes & Targets to Reduce Air Emissions
5. GHG Reduction Programmes
6. LTIR Trend
7. Bribery & Corruption Policy
8. Whistleblower Programmes

* All information about the above six indicators on Preparedness are directly drawn from Sustainalytics’ company profile database.

** Detailed risk analysis for specific companies covered in this report can be obtained from Sustainalytics upon written request.
Appendix 3: Analysis Framework for Oil and Gas exploration and production companies in ASEAN

Exposure
1. Nature of Company Business and Industry
2. Operations in high corruption risk countries and vulnerability to occupational accidents and spills

Preparedness
3. Environmental Management System
4. Oil Spill Disclosure & Performance
5. GHG Reduction Programmes
6. LTIR Trend
7. Bribery & Corruption Policy
8. Whistleblower Programmes

* All information about the above six indicators on Preparedness are directly drawn from Sustainalytics’ company profile database.

** Detailed risk analysis for specific companies covered in this report can be obtained from Sustainalytics upon written request.
Appendix 4: ASEAN: Overview

The Association of Southeast Asian Nations (ASEAN), founded in 1967, is a political and economic organisation of ten countries located in Southeast Asia.

Country diversity

ASEAN demonstrates heterogeneous economic, social and political characteristics among its member states. While Indonesia, the Philippines and Singapore are democratic republics, Vietnam and Laos are single-party socialist republic countries. In Myanmar, the military dictatorship was formally ended in 2011 and the country is moving towards democracy.

ASEAN: Key economic drivers

The combination of a large population and growing GDP is indicative of tremendous market potential in this region. ASEAN has nearly 600 million people and its annual GDP growth rate is projected to average 4.6% for the next two decades (See Figure 16). This growth will be driven mainly by the ever-growing consumption by the middle class. According to OECD outlook, Asia is projected to account for half of the world’s middle class by 2020. Within ASEAN, Indonesia and Vietnam are projected to experience the highest growth in their middle class. The overall trend in the region is expected to be that of a highly urbanised society. The shifting of the population from rural areas to urban centres, along with the high population growth rate, will create more demand for commodities and lead to more trading of goods and services.

ASEAN countries rely primarily on each other as trade partners (See Figure 17). The adoption of the ASEAN Economic Community 2015 is intended to transform the region into a single market and production base with free-flowing goods, services, investments, and skilled labour. As the biggest commodities consumer in the world, and thanks to its close proximity to ASEAN countries that are major commodity producers, China is ASEAN’s second largest trade partner. China has leveraged its economic power to create closer economic relationships with ASEAN countries. However, China’s claim of the South China Sea and its control of the upper Mekong River, has led to increasing political tension in the region and may result in future conflict and affect trade ties.

Figure 16: ASEAN Macroeconomic Overview and Population

| GDP | 4.41% share of the world GDP PPP |
| Population | 4.6% of projected annual GDP growth rate (2011 - 2035) |
| 600 million (8.6% of the world population) | 1.4% annual population growth |

SUSTAINACTIONS
Figure 17: Top export and import markets of ASEAN

<table>
<thead>
<tr>
<th>ASEAN Trade Partners</th>
<th>Export Market (USD bln)</th>
<th>Import Market (USD bln)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASEAN</td>
<td>25.8%</td>
<td>22.8%</td>
</tr>
<tr>
<td>China</td>
<td>11.3%</td>
<td>14.5%</td>
</tr>
<tr>
<td>Japan</td>
<td>10.1%</td>
<td>11.2%</td>
</tr>
<tr>
<td>EU 28</td>
<td>10.0%</td>
<td>9.6%</td>
</tr>
<tr>
<td>USA</td>
<td>8.6%</td>
<td>7.5%</td>
</tr>
</tbody>
</table>
Box 7: Singapore - A hub for commodities trading and shipping

Strategically located in the region, Singapore has become the natural hub to facilitate trade between the commodities producing countries such as Indonesia and Malaysia, and the large consumers of commodities in the region, such as China, and beyond. Singapore’s port sits on the world’s busiest shipping lanes. It is the world’s second busiest port, behind Shanghai, in terms of cargo tonnage. In 2012, Singapore handled an estimated 15% of the world’s physical crude oil trading, ranking fourth after Geneva, London, New York, and Huston.

The map below illustrates the frequency of daily sailings from Singapore to the rest of world. The most frequent route is to Southeast Asia followed by China. On average, 35 ships leave Singapore daily and head to one of the ASEAN ports and there are 12 departures to Greater China.

Figure 18: Frequency of daily sailings from Singapore to the rest of world
Appendix 5: Controversial Shipbreaking: New regulation proves to be a law without teeth

Approximately 90% of global trade is carried by sea. More than 100,000 merchant ships ensure the transport of goods and commodities across oceans. Every year approximately 1,200 of these vessels reach their end of life. Over 70% of all end-of-life ships are dismantled in countries with substandard working conditions and a lack of environmental regulations. In countries like India, Bangladesh or Pakistan, beaching is the most commonly used method, which consists of deliberately crashing a vessel onto a beach so that it can be dismantled during low tide. Beaching is considered the most controversial method of shipbreaking as it has a severe potential impact on the environment and human health. Based on estimations by the European Commission, each year up to 1.3 million tonnes of toxics are exported to South Asia from the EU. Fatalities and severe injuries due to explosions, fire, suffocation, and accidents are frequent among workers at shipbreaking yards in South Asia.

The International Maritime Organization (IMO) adopted the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships in 2009. The convention addresses relevant aspects of shipbreaking, from the construction phase and purchase of materials to enforcement mechanisms for ship recycling and certification. However, the IMO convention has not yet come into force as it has not been ratified by the minimum number of IMO member states.

In December 2013, the European Parliament and the Council of the EU agreed on a new proposal for the Regulation on Ship Recycling. The regulation bans beaching facilities for EU-flagged ships. However, the regulation is considered a law without teeth as ship owners can easily avoid violating the law by flagging out to non-EU registries. Using non-EU flags to profit from a less strict regulatory framework is a common practice among European ship owners. In the end, the new EU regulation could actually have the unintended and counterproductive effect of increasing the number of vessels being flagged out, and thus falling beyond EU regulation.

There are only a few shipping companies which clearly address controversial shipbreaking. A.P. Moller Maersk A/S is a best practice example. The world’s largest shipping company has adopted a ship recycling policy that includes a commitment to the Hong Kong Convention. Maersk states that it only uses ship recycling facilities with environmental and safety management systems certified to ISO 14001 and OHSMS 28001 and has implemented a monitoring system. The company also goes beyond compliance with IMO guidelines by adopting a “cradle-to-cradle” passport, which addresses the handling of all waste. However, in 2013 Maersk did not adhere to its strict policy. The company sold three vessels to a Greek ship owner and chartered the vessels back. All three vessels were beached in 2013. This practice remains a common way of circumventing a commitment to the responsible recycling of end-of-life vessels. In this context, investors can play a key role in engaging with shipping companies, owners, and brokers to reduce the severe environmental and social impacts of controversial shipbreaking.
<table>
<thead>
<tr>
<th>Shipping company</th>
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<th>Vessels beached in 2013</th>
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<tr>
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<td>Yang Ming Marine Transport</td>
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<td>1</td>
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</tbody>
</table>

*Figure 19: Vessels beached 2011-13*
Endnotes


39 Sustainalytics Research
About the Author

Hardik Shah

Hardik oversees the research process for equities in the information technology and utilities sectors. With a deep understanding of the environmental, social and governance (ESG) issues most important to investors, Hardik not only assures the quality of the research products but also engages with companies and clients on key ESG issues within these sectors.

Prior to joining Sustainalytics, Hardik was an ESG analyst at MSCI Inc. where he analysed the performance of companies across a variety of sectors including utilities and mining. Hardik also worked with Ernst and Young’s climate change and sustainability services team, advising clients on a variety of projects ranging from triple bottom line assessments to environmental due diligences and clean development mechanism advisory projects.

Hardik holds a bachelor’s degree in Electronics Engineering from Mumbai University and a post-graduate diploma in management from Welingkar Institute of Management Development and Research, Mumbai. Having lived in India, Hardik speaks fluent English, Hindi, Gujarati and Marathi.

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Arne is the lead industry analyst for transportation and oversees research of high profile companies in the automobiles, auto components, transportation service providers, transportation infrastructure, and aerospace and defense sectors. He has contributed significantly to the production of Sustainalytics’ industry reports authored thematic reports on such topics as sustainable mobility and the ESG performance of DAX 30 companies. In addition, he is involved in client relationship management, supporting various clients in the integration of ESG analysis into their investment decisions.

Prior to joining the company, Arne worked in the CSR management department of Commerzbank and was as a freelance journalist for a media group specialized in sustainability issues. He has a Magister Artium degree in Communication Science, Political Economics and Hispanics from the University of Münster. In addition to German, Arne speaks fluent English and Spanish.

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About the Author

Loïc Dujardin

Loïc leads Sustainalytics’ research team in Singapore and contributes to the continued enhancement of the firm’s overall responsible investment research offerings.

As a former senior analyst at Norges Bank Investment Management (NBIM), Loïc brings to Sustainalytics a deep understanding of the environmental, social and governance (ESG) issues most important to investors. He is also an expert on water-related ESG risks having successfully engaged on the issue with companies in the mining, utilities and food sectors in Asia. While at NBIM he also prepared the firm’s annual report on water risk management.

Loïc has a master’s degree in International Finance from Sorbonne University in France and a bachelor’s degree from Glasgow University, Scotland.

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