

Meeting China's Global Resource Needs

Managing Sustainability Impacts to Ensure Security of Supply

Palm Oil Pilot Study

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About this Paper

This report summarizes work to date on *how sustainability risks in China's global inward supply chains could be understood and managed to ensure security of supply*.

This study, presented in the Synthesis Report and three working papers (methodology, and copper and palm oil pilot studies), has been prepared by a team led by the International Institute for Sustainable Development (IISD), with support from the UK Department for International Development (DFID).

This working paper has been led by IISD Senior Fellow, Dr. Simon Zadek, and a combined Chinese and international research and engagement team comprising Han Cheng, Jason Potts, Gabriel A. Huppé, Jason Dion, Vivek Voora, and Maya Forstater.

Mark Halle, Executive Director of IISD-Europe, and Shantanu Mitra, Senior Economic Advisor at DFID China, have also provided insight and guidance. We would in particular like to acknowledge and appreciate the contributions, through participating in surveys, reviewing this report and/or attending the consultation workshop in Beijing on January 10th 2014, from the following, in no particular order. DFID London, Bie Tao and Yan E (MEP), Xu Qingjun and Peng Jing (MOFCOM), Zhang Shiguo (CODA), Zhang Jianping (NDRC), Chen Xiaohong (DRC), Jiang Heng (CAITEC), Wang Haiqin (DRC), Zhang En (CASS), Chen Ying (CCCFNA), Li Yusheng (CNIA), Chang Xingguo (CMA), Wei Xueyan (CBCSD), Adam Lane and Bao Min (BSR), Ren Peng and Zhu Rong (GEI), Yang Jie (Greenpeace), Bai Yunwen (G-Hub), Li Nan (WWF), Zhang Su (DFID), Jill Peng (RSPO), Ji Guojun and Ji Guojun (Xiamen University), Liu Xianbing (IGES), Thomas Kastner (Alpen-Adria University), Lizzie Parsons (Global Witness), Feng Kuishuang (University of Maryland), and many other experts in China and internationally.

Errors and omissions in the Report are the sole responsibility of IISD

Comments on the paper are welcomed in English to the Project Director, Simon Zadek (simon@zadek.net), or in Chinese or English to Han Cheng, Project Manager (chenghan528@gmail.com)

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Introduction

China's large and growing inbound supply chains are amongst the most direct ways in which China's rise impacts economies worldwide. For exporting countries this trade brings economic benefits such as employment, income and investment, but can also be associated with social and environmental (or "sustainability") problems. Negative impacts on land, water, air, biodiversity and communities can translate back into supply chain problems for China, whether through short-term disruptions or the broader impact on China's "brand" in international markets, which can affect the ability of Chinese enterprises to access international capital, resources, markets and talent.

China's strategic concerns to address resource scarcity and build an "ecological civilization" make effective management of the social and environmental footprint of inbound supply chains increasingly critical. Sustainability risks therefore should count for enterprises and policy-makers concerned with China's inbound supply chains. Yet for most companies operating in China, sustainability risks in inbound supply chains are poorly understood and often inadequately managed.

This initiative of the International Institute for Sustainable Development (IISD), supported by the UK Government's Department for International Development (DFID), is intended to help overcome this gap. The project:

- Developed and tested a methodology for assessing the relationship between sustainability and security of supply risks in inbound supply chains.
- Undertook two pilots to test the methodology, based on desk research, looking at the copper and palm oil supply chains.
- Surveyed and convened discussion with business people, policy-makers, academics, and NGOs to test the concepts, methodology and findings and to identify policy-relevant conclusions.

This paper, which outlines the findings of the palm oil pilot is therefore complemented by a paper on the copper pilot, and a technical paper on the methodology. These three input papers feed into the overall synthesis paper, which integrates the overall findings and draws out conclusions and policy recommendations, which are summarized below.

Summary of Conclusions from the Overall Synthesis

This project has demonstrated a systematic approach to assessing sustainability-related security of supply risks, at both an enterprise and a national level. The methodology is an initial foundation which demonstrates the feasibility and relevance of applying a common framework to identify “hot spots” and systematically draw business and policy makers’ attention to them.

It is clear from international and Chinese experience that there are policy measures that can be taken to support better management of supply chain risks. Five policy steps are outlined, which could be targeted to key product and country risks to ensure that supply chain sustainability is recognized as a strategic issue and addressed in a professionalized manner reflecting its importance:

1. **Build supportive capabilities of Chinese embassies and consulates.** The Chinese government through the Ministry of Commerce (MOFCOM) should build the capacity of the Economic and Commercial Affairs Sections of its embassies and consulates to support Chinese companies in identifying and addressing social and environmental impacts.
2. **Strengthen engagement with international standards.** The Chinese government, through MOFCOM and the China National Institute of Standardization (CNIS) should accelerate its engagement with international standards which relate to strategic commodity supply chains at risk, identifying and addressing key gaps and risks, and building on its existing engagement with standards in areas such as conflict minerals and forests.
3. **Explore fiscal measures.** Fiscal measures may offer a lever for encouraging Chinese enterprises to address their own sustainability footprint, and that of their overseas suppliers. The Chinese government could engage in research to understand the potential of fiscal measures to incentivize the development of sustainable supply chains.
4. **Integrate supply chain sustainability into green public procurement.** Public procurement criteria can provide a further driver to improve sustainability impacts of China’s inbound supply chains. The Chinese government, through MOFCOM, the Ministry of Environmental Protection (MEP) and key provinces could develop and pilot supply chain related green procurement criteria for a limited and targeted set of products.
5. **Develop supply chain risk criteria in existing corporate social responsibility (CSR) and green business guidelines.** Integrating supply chain risk into responsible business guidelines would make them more useful to companies and investors. This could draw on international best practice and the experience of leading Chinese companies

In addition, an overarching approach is needed to China’s international supply footprint part of its vision for resilient and sustainable development. One of the most notable findings from the discussions and consultations in developing this project is that there is no ministry or department with an overall vision and mandate for understanding China’s import footprint and how it can be managed more effectively. Taking strong action depends on there being an overall vision articulated as part of the broader view of development. The National Development and Reform Commission (NDRC) could consider developing a broader goal and metric of performance on supply chain sustainability, as part of the national planning process in the lead up to the 13th five-year plan, and as part of China’s development as an “ecological civilization.”

The International Institute for Sustainable Development is committed to working in and with China to advance sustainable development, and views the area of inbound supply chains as a key strategic opportunity to achieve this mutual goal.

1.0 Global Supply

Palm oil is versatile oil used widely as an ingredient of food and grocery products, such as baked goods, confectionary, shampoos and crèmes. It is also a feedstock for biofuels. Worldwide, palm oil in food products comprises 80 per cent of current final demand while palm oil as feedstock for biofuels accounts for 2 per cent of final end use. Global consumption of palm oil has increased tenfold since 1980 and now stands at around 50 million tonnes per year, and the area occupied by palm oil cultivation has expanded globally by 43 per cent since the 1990s. Palm oil is now over a third of the global edible oil market, and recently passed soya as the world’s primary source of vegetable oil. A growing global population and changing diets, combined with the production efficiency of the oil palm and the unique properties and versatility of palm oil for both edible and non-edible uses, mean that palm oil cultivation, processing and use will continue—and likely grow—in the decades ahead (Net Balance Foundation, 2013).

On global commodity markets, palm oil is increasingly being supported by energy prices as demand for biofuels rises (Net Balance Foundation, 2013). This is a contributor to the overall price rise seen in the last decade. However, increasing production and substitution of palm oil for oils with less saturated fats is expected to lead to a slight decline in prices over the next decade (World Bank, 2013).

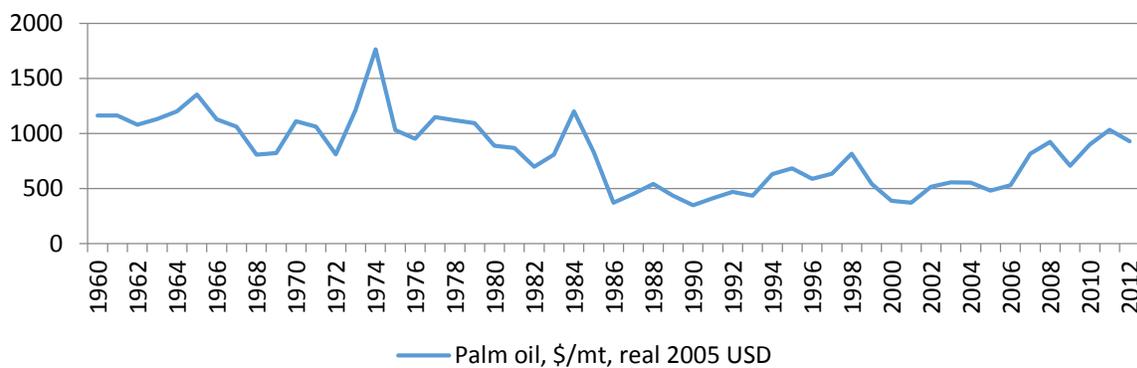


FIGURE 1. HISTORICAL GLOBAL PALM OIL PRICES

Source: World Bank, GEM Commodities database

Growing global demand for palm oil has driven the development of vast plantations, particularly in the Southeast Asia region where there is a tradition of cultivation. The Dutch introduced oil palms to Indonesia in the middle of the 19th century, and Malaysia and Indonesia began production in the early part of the 20th century, and production has ramped up significantly since then as seen in Figure 2. Thailand—although less suited to cultivation because of its lower humidity and less fertile land—started establishing plantations in the late 1970s. However, as seen in Figure 3, Malaysia and Indonesia are by far the largest producers in the global market, producing over three quarters of the palm oil consumed globally due to their climate (palm oil will only grow in the humid tropics) and their political stability, which has encouraged a large amount of investment.

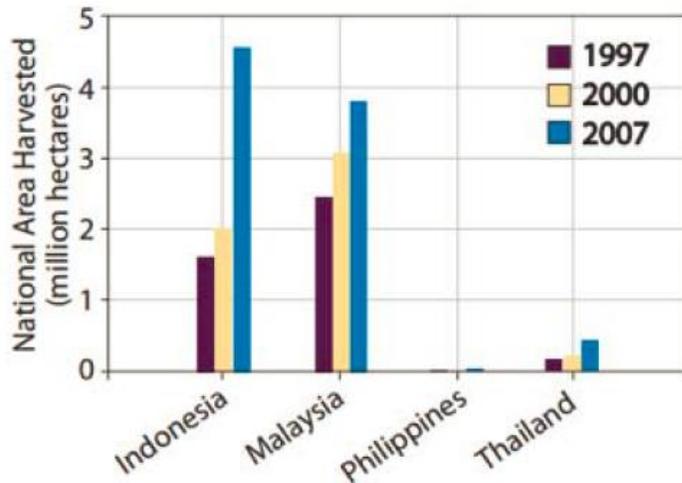


FIGURE 2. PALM OIL AREA HARVESTED IN SOUTHEAST ASIA REGION

Source: Net Balance Foundation, 2013

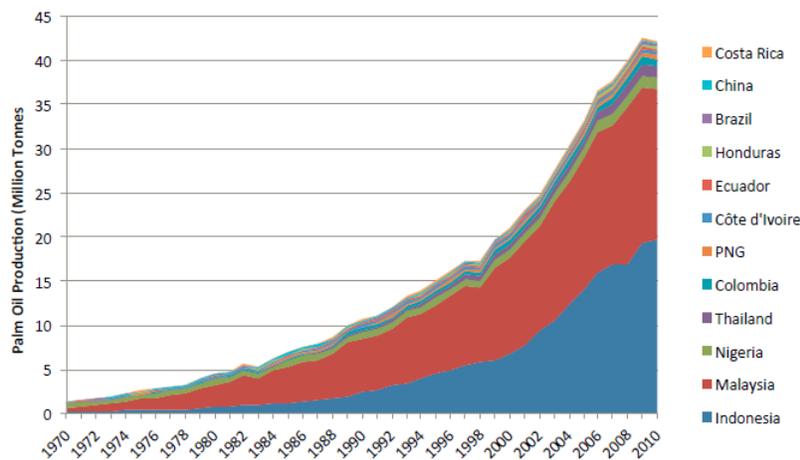


FIGURE 3. TOP 12 PALM OIL PRODUCING COUNTRIES, 1970 - 2010

Source: Net Balance Foundation, 2013

Africa has also been seeing significant development in palm oil in recent years. The world’s biggest producers and investors have increasingly turned their attention there, seeking to acquire land to grow oil palms in what some experts have dubbed the “next frontier” of industrial agricultural production (Greenpeace, 2012a). But while additional capacity in Africa may raise global production going forward, there are concerns that limited land availability, fertilizer costs, sustainability concerns, weather variability (short term and longer term due to climate change) and land availability will interact to dampen growth (Net Balance Foundation, 2013).

The major consumers of palm oil include China, India, Pakistan and Malaysia. As seen in Figure 4, demand from India and China have increased significantly in the last decade, especially in China where demand has more than tripled. Until now, palm oil production has doubled every ten years (Mielke, 2013). By 2020, it is expected to grow to 78 million tonnes, a 40 per cent increase over current levels (Mielke, 2013).

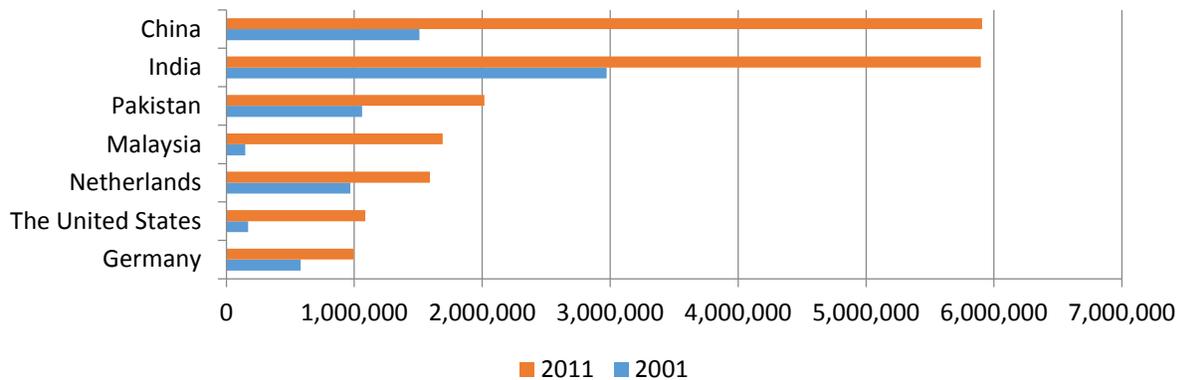


FIGURE 4: LARGEST IMPORTERS OF PALM OIL, TONNES

Source: UN, COMTRADE database

The most suitable areas for palm oil cultivations are 10 degrees off the equator in tropical countries. In terms of environmental and sustainability issues related to palm oil production and trade, the expansion of palm oil over the years has led to widespread deforestation at the expense of global carbon stocks such as tropical forests and peatlands, not to mention the loss of rich biodiversity, and infringements of land rights and labour standards (May-Tobin, C., Boucher, D., Decker, E., Hurowitz, G., Martin, J., Mulik, K., et al, 2012).

2.0 Supply Risk

The IISD Supply Risk Tool was applied to China's palm oil supply chain. The results as well as the implications are discussed below, with further detail in appendix 1.

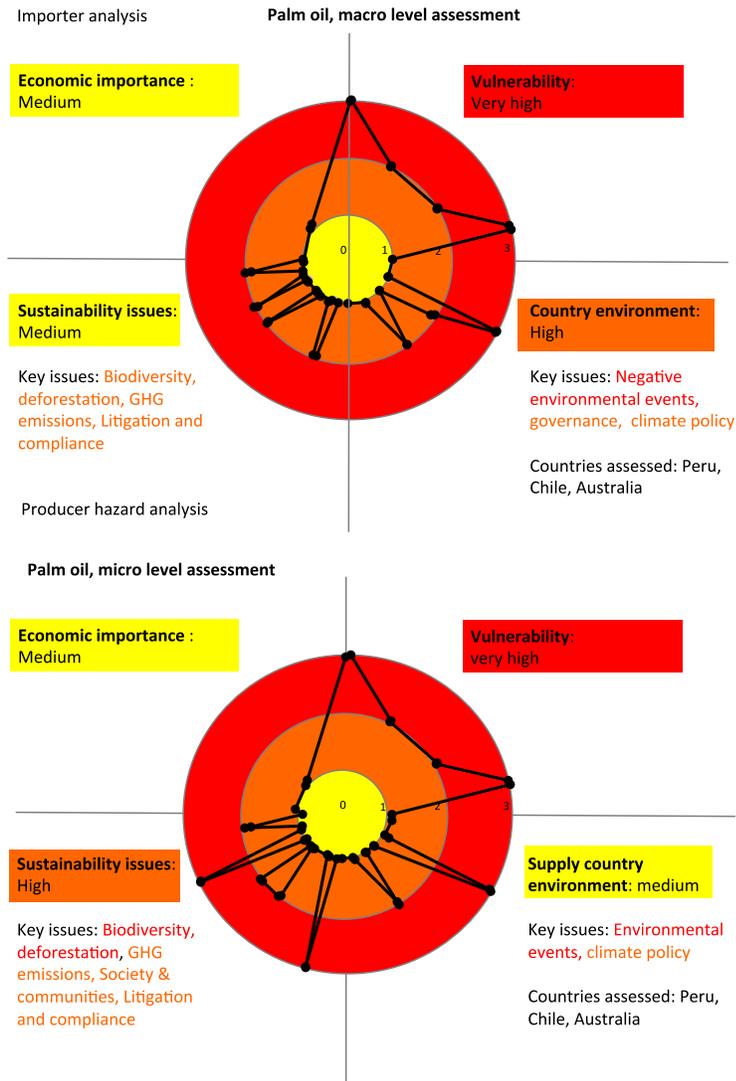


FIGURE 5. PALM OIL ASSESSMENT

TABLE 1. PALM OIL ASSESSMENT

Component		Micro (enterprise)	Macro (country)
Economic importance		Medium	
Vulnerability		Very High	
Sustainability issues		Medium	High
Country environment		High	Medium

Sustainability issues		Micro (enterprise)	Macro (country)
Land use		Medium	Medium
Water use		Medium	Medium
GHG Emissions		High	High
Pollution		Medium	Medium
Biodiversity		Very High	High
Deforestation		Very High	High
Energy efficiency		Medium	Medium
Labour and human rights		Medium	Medium
Society and communities		High	Medium
Maintenance and safety		Medium	Medium
Corruption		Medium	Medium
Litigation and compliance risks		High	High
Transparency		Medium	Medium

Country environment		Micro (enterprise)	Macro (country)
Climate change policy		High	High
Resource nationalism		Medium	Medium
Natural and environmental disasters		Very High	Very High
Strength of governance		Medium	High
Trade and interconnectivity		Medium	Medium
Competition and markets		Medium	Medium
Knowledge & access to information		Medium	Medium

2.1 Vulnerability - Very High

China is the world's second largest importer and third largest consumer of palm oil, importing USD \$7 billion of palm oil in 2011, with import volumes accounting for 20 per cent of global palm oil trade volumes and 16 per cent of the total palm oil produced globally. Importing approximately USD \$7 billion of palm oil in 2011, China is 98 per cent dependent on imports to supply its domestic consumption needs, which are expected to reach about 6.6 million metric tonnes (MT) in 2013 (IndexMundi, 2013). The national supply security of palm oil is especially vulnerable to supply disruptions because global palm oil production is concentrated in relatively few countries. About 96 per cent of Chinese palm oil imports originate from either Malaysia, Indonesia or India. In addition, 37 per cent of palm oil imports come from countries with high or extreme political risks according to the Maplecroft Political Risk (Dynamic) Index. Indonesia is rated as having as being especially risky due to a high and increasing Resource Nationalism Index risk by Maplecroft, indicating risk of supply-side restrictions on export

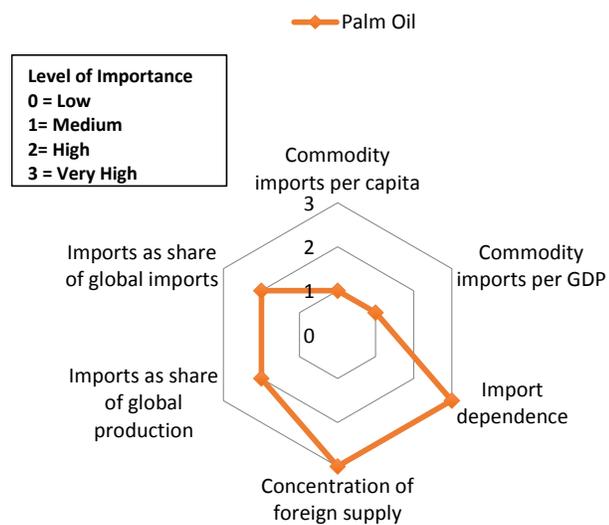


FIGURE 6. VULNERABILITY AND ECONOMIC IMPORTANCE INDICATORS

of commodities due to nationalization, expropriation, export freezes or tax rises. Palm oil imports have grown rapidly since the year 2000. Between 2000 and 2005 only, annual import volumes into China jumped from 1.4 million tonnes to 4.6 million tonnes. Additionally, prior to 2006, Chinese state-owned enterprises used a quota to import palm oil, but this policy was withdrawn in 2006, and all licensed companies now have the right to import palm oil into China. As a result, more Chinese enterprises now have the right to import palm oil, making competition more intense. Palm oil imports have fluctuated around 6 million tonnes over 2008–2011. Palm oil companies and food processors are subject to some preferential policies and subsidies provided by the government (Tao, 2009). Palm oil is the second most consumed vegetable oil in China after soybean oil (Ying, 2011). Chinese palm imports are mainly refined palm oil (70 per cent) for food applications, while about 9 per cent and 21 per cent are in the form of crude palm oil and palm stearin respectively (CFNA and Defra, 2011).

2.2 Economic Importance – Medium

Palm oil is the second most consumed vegetable oil in China after soybean oil (Ying, 2011). Imports have grown rapidly since the year 2000. Between 2000 and 2005, annual import volumes into China rose from 1.4 million tonnes to 4.6 million tonnes. Prior to 2006, imports of palm oil to China were limited by quotas issued to Chinese state-owned enterprises, but this policy was withdrawn in 2006 and as a result, more Chinese enterprises now have the right to import palm oil. Palm oil companies and food processors are subject to some preferential policies and subsidies provided by the government (Tao, 2009). Chinese palm imports are mainly refined palm oil (70 per cent) for food applications, while about 9 per cent and 21 per cent are in the form of crude palm oil and palm stearin respectively (CFNA and Defra, 2011). Because most of the palm oil is used in food products, the recorded outflow of palm oil from China is relatively small (CFNA and Defra, 2011), although it will be included as an ingredient in exported food products. On a per capita basis, China imported about 5 kilograms or USD \$5 of palm oil per person in 2011 for each of the 1.3 billion individuals living in China. Palm oil is an important ingredient in many Chinese foods, including the famous Master Kong and Uni-President China instant noodles and various so called fast foods and processed foods, which are becoming increasingly popular in the country. Whereas fast food chains like MacDonald’s and Yum! Brands restaurants (KFC, Pizza Hut and Taco Bell) are currently some of the largest palm oil consumers in China, various smaller and lesser known restaurant chains and local eateries also procure large amounts of palm oil for consumption in their prepared foods. Although palm oil can be substituted with other oils, this has significant price implications. On average urban residents spend about 36 per cent of their disposable income on food, while food accounts for between 40 and 45 per cent of spending by rural residents. The security of palm oil supplies is a significant concern. In 2011, among the importers of palm oil in China, foreign investment enterprises and private enterprises accounted for 80 per cent of palm oil imports. Between 2007 and 2011, imports of foreign investment enterprises accounted for 51.7 per cent of total imports while, over the same time period, imports from private enterprises were about 30 per cent. State owned enterprises accounted for approximately 10 per cent of total imports in 2011 (Global Environmental Institute, 2013). The top 10 largest importers are mainly foreign investment enterprises and private enterprises, including both commodities traders such as Bunge and Cargill, and users such as McDonalds and Unilever. Between 2007 and 2011, the proportion of annual imports by these 10 enterprises increased from 44 to 53 per cent of total. However, during these five years, the number of foreign investment enterprises in the top ten dropped from six to four, and that of private enterprises increased from two to five. The value of palm oil imports represents about 0.1 per cent of China’s GDP. Key importing sectors include consumer goods manufacturers in the food and consumer products industries, restaurant chains, and agricultural commodity traders. Chinese demand for palm oil is expected to grow 10 per cent

per year, reaching 8.6 million tonnes in 2015 and 12 million tonnes in 2020 (CFNA and Defra, 2011). This increase in demand is mainly attributable to food uses to meet per capita consumption increase (CFNA and Defra, 2011). In total, more than 5,000 enterprises in China are known to be end users of palm oil (WWF, 2013). Between 2011 and 2013, Chinese Roundtable on Sustainable Palm Oil (RSPO) membership has grown from four to 17 companies. The RSPO has recently established a China Working Group to help build the momentum for transforming the Chinese palm oil industry. Box 1 discusses these developments.

2.3 Sustainability Issues – High Micro and Medium Macro

The most significant environmental impact associated with palm oil is deforestation, particularly in Malaysia and Indonesia. A 2007 report from the United Nations Environment Programme found oil palm plantations to be the leading cause of deforestation in both countries. Estimates suggest that between 2005 and 2010, approximately 30 per cent of oil palm expansion in Malaysia and Indonesia occurred at the expense of natural forests, and over the same period, approximately 30 per cent of forest loss was due to conversion to oil palm plantations. In Indonesia, rainforests and carbon-rich peatlands were destroyed at a rate of 1.1 million hectares annually between 2000 and 2005, endangering species including Sumatran tigers and orangutans. Deforestation has a variety of impacts, including forest fires, greenhouse gas emissions and biodiversity loss. Rapid expansion caused Indonesia to become the third largest emitter of greenhouse gases on the planet. Biodiversity loss is a significant concern because Malaysia and Indonesia are rich tropical ecosystems with many species being unique to these forests which are rapidly being destroyed for oil palm plantations. The orangutan, whose habitat is severely threatened as a consequence of expanding cultivation, has become the public face of the negative biodiversity impacts of palm oil. (Greenpeace, 2012a). In May 2011, the government of Indonesia established a two-year moratorium on new concessions (permits) for the clearance of rainforests and peatlands, including for pulp and oil palm plantations.

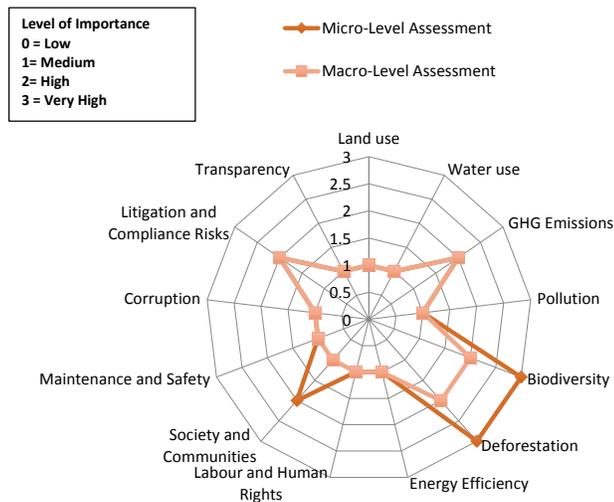


FIGURE 7. SUSTAINABILITY ISSUES INDICATORS

In terms of social impacts, oil palm expansion in Malaysia and Indonesia has, in many cases, forced indigenous and local communities off their land. The Indonesian organization Sawit Watch says it is currently monitoring more than 660 land disputes in Indonesia. Palm oil companies typically do not consult local communities sufficiently, and tend to work through the government or the heads of communities, which are also prone to corrupt practices (Colchester & Chao, 2013). Worker health and safety is also a concern due to poor control of pesticide safety, and poor living conditions at plantation barracks (Colchester & Chao, 2013).

Corruption, litigation, compliance and transparency are significant risks as well. Between May and September 2013, widespread wildfires were claimed to have been set deliberately to clear land for new palm oil plantations in Indonesia,

a practice that is illegal (NASA/Goddard Space Flight Center, 2013). Ghost palm oil estates which operate without the necessary permits are also a problem. One of the largest owners of palm oil plantations, Burmitama Agri Ltd., which controls 200,000 hectares of plantation has recently been blamed for taking part in illegal clearing of hundreds of hectares of peatland and forest in clear violation of national laws (Friends of the Earth Europe, 2013a). At least 7,000 hectares of ghost estates have also been found in Burmitama's land bank (Friends of the Earth Europe, 2013a). It is reported that palm oil giant Wilmar International purchased 56 per cent of Burmitama Agri's palm oil, thereby bringing illegal palm oil into their supply chains (Friends of the Earth Europe, 2013b).

2.4 Country Environment – Medium Micro and High Macro

The greatest country supply hazards facing China and Chinese enterprises are climate change policy, resource nationalism, and natural disasters and negative environmental events. Resource nationalism is pronounced in Indonesia with respect to Maplecroft's Resource Nationalism Index, which looks at factors such as risk of outright nationalization and expropriation, export freezes or restrictions, and increases in taxes on revenues, as being at a medium risk level. The risk is moderate in Malaysia, the other major supplier, making the overall risk outlook less gloomy than it might be otherwise. Finally, climate change policy is found to present a risk in both Indonesia and Malaysia, and emissions impact is a factor in the Roundtable on Sustainable Palm Oil's certification standards, therefore climate policy related risk is an important consideration at the national level in China in seeking markets for producers' products abroad.

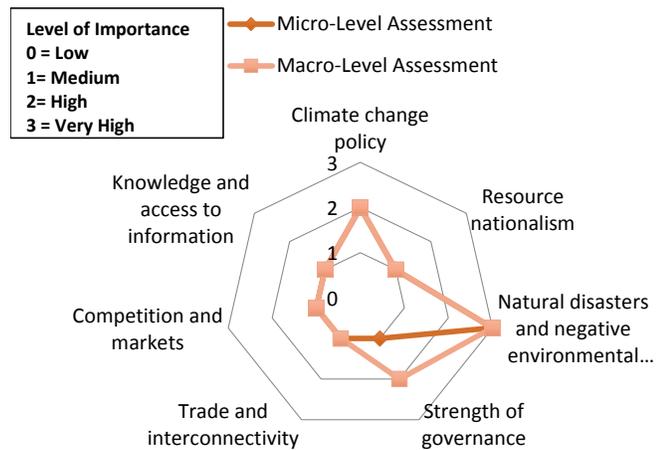


FIGURE 8. COUNTRY ENVIRONMENT INDICATORS

The country supply mix is concentrated, with Malaysia and Indonesia providing the vast majority of supply. Therefore the commodity sector is very vulnerable to supply shocks in these countries. In terms of the Chinese economy, a shock to the palm oil supplies would impact some food processing sub-sectors, but would likely extend no further. However, because of the dominance of two particular countries in the supply chain, an impact in one or both of these single countries could strongly impact security of supply.

BOX 1: RSPO AND SUSTAINABLE PALM OIL IN CHINA

Because China does not itself produce palm oil, the government has no environmental policy on palm oil production and trade (Tao, 2009). However, China National Cereals, Oils and Foodstuffs Corporation (COFCO), the largest importer of palm oil in China, has begun to engage with the Roundtable on Sustainable Palm Oil (RSPO), and has imported about 1,000 MT of RSPO compliant palm oil (Personal communication, Nan Li, WWF, December 15, 2013). Foreign investment enterprises like Bunge, Cargill, L’Oreal, McDonalds, Unilever and Yum! Brands Inc. typically have sustainable sourcing policies which include specific standards and commitments around palm oil. Unilever, which is one of the largest buyers of palm oil, has pledged to buy all of its palm oil from “traceable” sources by 2014, while committing to 100 per cent sustainably sourced palm oil by 2020 (Unilever, 2013). Cargill has committed to sourcing 100 per cent of its palm oil destined to customers in Europe, the United States, Canada, Australia and New Zealand from RSPO compliant sources by 2015, while committing to source 100 per cent RSPO compliant product for palm oil destined to all other customers worldwide, including China and India, by 2020 (Cargill, 2012). Bunge and McDonalds have also committed to sourcing 100 per cent RSPO compliant palm oil by 2020 (Roundtable on Sustainable Palm Oil, 2012a), while L’Oreal has been sourcing 100 per cent RSPO compliant palm oil since 2012 (Roundtable on Sustainable Palm Oil, 2012b). Yum! Brands Inc. is under increasing pressure from shareholders, which submitted a proxy request that the board of directors adopt and implement a comprehensive sustainable palm oil policy (Ceres, 2013). This resolution was withdrawn, and dialogue on this issue is currently ongoing (Ceres, 2013).

Between 2011 and 2013, Chinese RSPO membership has grown from four to 17 companies. The RSPO has recently established a China Working Group to help build the momentum for transforming the Chinese palm oil industry. In May 2013, the China Chamber of Commerce for Import & Export of Foodstuffs, Native Produce & Animal By-Products (CFNA) signed a MOU with the RSPO, committing both organizations to greater cooperation in a number of areas, including promotional activities, dialogue and exchange visits, information sharing, and policy recommendations (Roundtable on Sustainable Palm Oil, 2012). At the RT8 Annual Roundtable Meeting on Sustainable Palm Oil in 2010, it was suggested that China’s consumption of RSPO compliant palm oil could attain 20 per cent of its total consumption of palm oil by 2015, and 40 per cent by 2019 (Hai, 2011). Although the growth in sustainable palm oil in China has been mainly driven by foreign investment enterprises, future growth will come from Chinese state-owned and private enterprises.

Organizations like WWF and Greenpeace have been active in trying to change the practices of palm oil producers and palm oil buyers towards sustainable behaviour. WWF publishes an annual palm oil buyer scorecard that evaluates the sourcing practices of palm oil buyers against their commitments to sustainable palm oil procurement. Greenpeace produces a scorecard that reviews the steps taken by the world’s largest palm oil producers to limit their environmental impact. Investors are also putting increasing pressure on global palm oil supply chains, driven by the initiatives of leading investors such as Robeco and Triodos, as well as the UN-backed Principles for Responsible Investment’s Sustainable Palm Oil Investor Working Group (PRI Association, 2013). As a result, palm oil producers are starting to recognize the importance of sustainability. In May 2010, Golden Agri Resource (GAR)—one of the world’s largest producers of palm oil—pledged to stop clearing forest areas high in carbon, referred to as high carbon stock (HCS) forest, and renewed its commitments not to clear peatlands and forests of high conservation value (Greenpeace, 2012a). In December 2013, Wilmar International, which controls 45 per cent of global palm oil production and trade announced that its sources would provide only products that are “free from links to deforestation or abuse of human rights and local communities (Grant & Bland, 2013).”

As part of its pursuit of a harmonious society by 2020, China has made advancements towards global agendas such as the mitigation of climate change, biodiversity protection and a low carbon economy. Because China is one of the largest consumers of palm oil in the world, its sourcing of palm oil is an important consideration within these overall environmental and economic objectives. Because palm oil is an important component of China’s food security, it is critical to ensure that future supply of palm oil can meet growing Chinese demand, without excessive environmental damage in producing countries (CFNA and Defra, 2011). It is also important to note that some Chinese companies such as the Julong Group, which operates in the province of East Kalimantan in Indonesia, are active in palm oil investments.

Company	Headquarters	Share of global CPO production (2011) ¹	Forest protection ²	Peatland protection ³	Percentage of RSPO certified palm oil ⁴
Agropalma Brazil	Brazil	0.3%	✓	✓	✓
New Britain Palm Oil Ltd.	Papua New Guinea	1.1%	✓	✓	✓
Golden Agri Resources Ltd (GAR)	Singapore	4.3%	✓	✓	-
Wilmar International	Singapore	3.5%	-	✓	✓
Musim Mas Group	Indonesia	1.2%	✓	✓	✓
Sime Darby Plantation Sdn Bhd	Malaysia	4.8%	-	-	✓
IOI Corporation Bhd	Malaysia	1.4%	-	-	✓
Asian Agri	Indonesia	1.4%	-	-	✓
Indofood Agri Resources Ltd	Singapore	1.7%	-	-	-
PT. Astra Agro Lestari Tbk*	Indonesia	2.5%	-	-	-
PT. Darmex Agro (Duta Palma)*	Indonesia	0.9%	-	-	-
		Total: 23.1%			

1. Global CPO production share based on company information. Global production figure taken from Oilworld ISTA Mielke (2012), OILWORLD data base June 2012.
 2. Companies can score a ✓ if they have a policy for the full protection of peatlands in their concessions and a - if they have some measures in place to protect peatland.
 3. Companies can score a ✓ if a company A) has a policy on natural forest protection and conservation (not just primary forest or HCV forests) including for suppliers, and B) accepts an approach that would define HCS forest for conservation, and low carbon stock land (segregated), including via a carbon threshold for palm oil development. ✓ : meets A) but not B) or meets B) but not A)
 4. Companies can score a ✓ if they have more than 50% of their palm oil production RSPO certified, and a - if they have between 25-50% of their palm oil production RSPO certified.
 5. If two companies have the same score the company with the larger production ranks higher.
 6. - did not meet the requirement.
 7. * did not respond to the Greenpeace questionnaire so score completed through publicly available information and Greenpeace assessment.

FIGURE 9. SCORECARD FOR MAJOR PRODUCERS OF CERTIFIED PALM OIL

Source: Greenpeace (2012)

3.0 Implications

TABLE 2. PALM OIL NEXUS ASSESSMENT

	Supply chain risks									
	Price rise and volatility/affordability risk			Supply disruption/accessibility risk				Reputation/acceptability risk		
	Resource pressure	Compliance costs	Environmental pricing	Local protests	Contract risk	Accidents, disasters	Export bans	Public concern at home	Consumer concern	International standards
Production associated with:										
Large areas of land use	Yellow					Yellow	Yellow			
Water use in areas of water shortage	Yellow			Yellow		Yellow				
High levels of GHG emissions		Orange	Orange					Orange	Orange	Orange
High levels of local pollution		Yellow	Yellow	Yellow		Yellow		Yellow	Yellow	Yellow
Deforestation	Red	Red		Red			Red	Red	Red	Red
Impacts on biodiversity		Red		Red			Red	Red	Red	Red
High energy use	Yellow					Yellow				
Labour and human rights abuse		Yellow		Yellow		Yellow		Yellow	Yellow	Yellow
Tensions with local communities	Orange			Orange				Orange	Orange	Orange
Maintenance and security risks		Yellow				Yellow		Yellow	Yellow	Yellow
Corruption				Yellow	Yellow			Yellow	Yellow	Yellow
Litigation and compliance risks		Orange								
Concerns over lack of transparency					Yellow			Yellow	Yellow	Yellow

Level of importance: ■ Very High (3) ■ High (2) ■ Medium (1) ■ Low (0)

This analysis highlights the high levels of vulnerability of China’s economy, and of enterprises in key sectors to disruption to the supply of palm oil. While Palm Oil does not represent an economically critical import for China in the same way as other commodities, it poses particular concentrated supply-side hazards related to deforestation, and associated greenhouse gas emission, biodiversity losses and conflicts with local communities. This is a systemic problem affecting the palm oil industry in major exporting nations, and the reputation of palm oil as an ingredient in foods and energy.

These hazards may disrupt supply, however this is not seen as a major problem, as palm oil is substitutable with other vegetable oils. However the key pressure to address palm oil’s reputational risks is for Chinese oil traders and food brand manufacturers seeking to trade internationally and with international brands in China. Responsibly sourced and “deforestation free” palm oil is increasingly becoming an industry standard for global brands such as Unilever and L’Oreal. Many companies are working together under initiatives such as The Roundtable on Sustainable Palm Oil (RSPO) whose participants include environmental NGOs, banks and investors, growers, processors, manufacturers

and retailers of palm oil products and social NGOs. They have established global guidelines for producing palm oil sustainably and set up a system of third party inspection to enable transparency and traceability. RSPO members produce about 40 per cent of the world's palm oil and are processors or users of more than 30 per cent. As mentioned previously, Chinese RSPO membership has grown from four to 17 companies between 2011 and 2013. A China Working Group was created to help build the momentum for transforming the Chinese palm oil industry.

Chinese palm oil buyers are vulnerable to these environmental, social and governance hazards. Deforestation, biodiversity, greenhouse gas emissions, and litigation and compliance risks and societies and communities all pose a high level of risk to both supply stability and brand and reputational capital, while land use, water use, energy efficiency, pollution, labour and human rights, maintenance and safety, corruption, and transparency pose moderate levels of risk. Losses that could accrue to Chinese enterprises as a result of these hazards are significant. Hazards that are environmental and social in nature can impose efficiency and productivity constraints on important palm oil producers which may disrupt supply—such as poor social or environmental performance that leads to protests and social unrest on plantations—while poor environmental, social and governance performance may cause supply constraints due to the source of supply not being compliant with the enterprise's standards of sustainability and responsibility. Unless measures are in place to ensure that an enterprise procures palm oil that complies with such standards, global enterprises like Unilever and L'Oreal are vulnerable to consumer boycotts and negative publicity runs the risk of damaging its brand and reputation. There is less evidence of reputational effects on Chinese brands from palm oil controversies, but, as the recent interest of Chinese enterprises in the RSPO would suggest, reputation is becoming a growing concern.

At the national level, China, which consumes approximately 16 per cent of palm oil produced globally, is especially vulnerable to generalized and systemic producer hazards. Hazards like deforestation, greenhouse gas emissions, biodiversity, human rights, societies and communities, as well as corruption, litigation and compliance, and transparency risks are, to some degree, systemic across the whole palm oil industry, and affect a cross-section of producers. Some of these hazards, despite being generalized and systemic, represent only a marginal prospective impact on security of supply in China because of a lack of normative pressure or clear linkage to productivity and efficiency of palm oil production on an industry-wide level, and thus represent a smaller loss exposure at the macro China level, even though these hazards might represent significant loss exposures for enterprises. These hazards include labour and human rights, and societies and communities. Other hazards like greenhouse gas emissions and deforestation, pose a real risk of affecting productivity and efficiency of palm oil production on a global scale, and therefore China's security of supply because of significant current normative pressures and clear linkage between the reduction of these hazards and palm oil productivity and efficiency of production. Biodiversity, land use, water use, pollution, corruption and litigation and compliance risks pose moderate levels of national loss exposure. As normative pressures change the practices of producers on an industry-wide level towards practices that are more responsible and sustainable, the quantity and stability of supply is affected. Conversely, the promotion of sustainable and responsible approaches to palm oil production now, can help ensure that a large portion of global palm oil output can remain acceptable, available, accessible and affordable, as norms continue to evolve.

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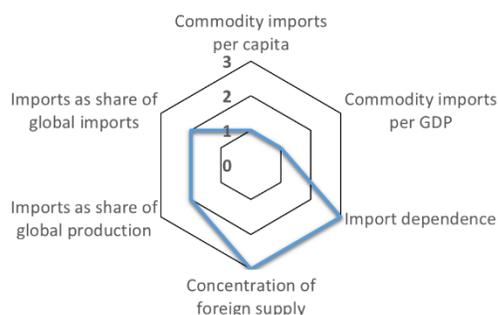
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Appendix 1: Summary of analysis

China Palm Oil Supply Vulnerability and Economic Importance



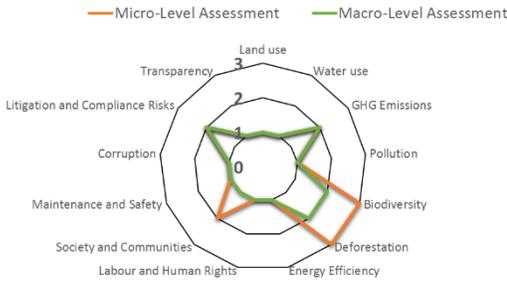
China Security of Supply – Palm Oil	
Palm oil production (MT, 2009 FAOSTAT)	230,000
Palm oil exports (MT, 2009 FAOSTAT)	64,124
Palm oil imports (MT, 2009 FAOSTAT)	6,866,801
Palm oil import value (1,000 \$USD, 2009 FAOSTAT)	4,339,937
Net commodity imports (MT, 2009 FAOSTAT)	6,802,677
Palm oil domestic supply (MT, 2009 FAOSTAT)	7,032,877
Import dependency ratio (MT, 2009 FAOSTAT)	98%
Ratio of total palm oil import as share of global production (2009)	16%
Ratio of total palm oil import as share of global imports (2009)	20%
Ratio of value of palm oil imports to GDP (2009)	0.09%
Ratio of palm oil imports per capita (2009)	0.005
Ratio of value of palm oil imports per capita (\$USD, 2009)	3.26
Volume of palm oil in reserves (MT, 2009 FAOSTAT)	200
Percentage of palm oil imports coming from weak governance zones (Countries with Transparency International 2012 corruption index below 30)(2009)	0%
Percentage of palm oil imports coming from zones with high or extreme geopolitical risk [Countries with Maplecroft Political Risk (Dynamic)2013 Index below 3.75] (2009)	37%
Percentage of imports coming from the three largest supplier countries (Malaysia, Indonesia, India)(2009)	96%
Percentage of cash spent on food (urban population)(2011)	36%
Percentage of consumption spending on food (rural population)(2011)	40-45%

Aggregate Domestic National Vulnerability and Economic Importance Score	Economic Importance		Vulnerability			
	Commodity imports per capita	Commodity imports per GDP	Import dependence	Concentration of foreign supply	Imports as share of global production	Imports as share of global imports
High (2)	Medium (1)	Medium (1)	Very High (3)	Very High (3)	High (2)	High (2)

Source: Compiled from FAOSTAT (2013) and Kreab Gavin Anderson (2013).

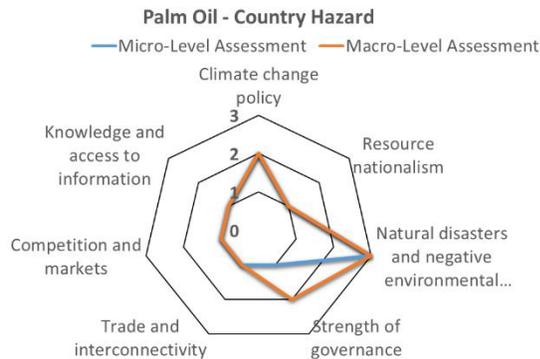
Palm Oil Producer Sustainability Issues Assessment

Palm Oil - Producer Hazards



	Fixed analysis		Micro-level assessment			Macro-level assessment		
	Relevance to the sector	Share of supply	Hazard loss exposure	Prospective Impact	Likelihood	Hazard loss exposure	Prospective Impact	Likelihood
Aggregate Producer Supply Hazards Score			High (2)			Medium (1)		
	Medium (1)	High (2)	Medium (1)	Medium (1)	Medium (1)	Medium (1)	Medium (1)	Medium (1)
Land use	<ul style="list-style-type: none"> Palm oil is the subject of the food-versus-fuel debate, which draws attention to the issue that the expansion of oil palms for biofuel production has direct and indirect effects on food security. Because palm oil is being bought for biofuel production instead of food, there is increasing demand for the commodity, and thus an increase in prices for palm oil destined for food. Additionally, oil palm expansion has serious environmental effects (covered in greenhouse gas emissions and deforestation hazards), and also diverts agricultural land away from growing crops for food use. However, palm oil can also be cultivated on degraded land that is unsuitable to other crops. 							
Water use	Low (0)	Medium (1)	Medium (1)	Medium (1)	Low (0)	Medium (1)	Medium (1)	Low (0)
GHG Emissions	Very High (3)	High (2)	High (2)	High (2)	High (2)	High (2)	High (2)	Medium (1)
Pollution	Medium (1)	High (2)	Medium (1)	Medium (1)	Low (0)	Medium (1)	Medium (1)	Low (0)
Biodiversity	Very High (3)	Very High (3)	Very High (3)	Very High (3)	Medium (1)	High (2)	High (2)	Medium (1)
Deforestation	Very High (3)	High (2)	Very High (3)	Very High (3)	High (2)	High (2)	High (2)	Medium (1)
Energy Efficiency	Low (0)	Medium (1)	Medium (1)	Low (0)	High (2)	Medium (1)	Low (0)	Medium (1)
Labour and Human Rights	High (2)	Low (0)	Medium (1)	Medium (1)	Medium (1)	Medium (1)	Low (0)	Low (0)
Society and Communities	High (2)	Low (0)	High (2)	High (2)	Medium (1)	Medium (1)	Medium (1)	Low (1)
Maintenance and Safety	Medium (1)	High (2)	Medium (1)	Medium (1)	Low (0)	Medium (1)	Low (0)	Low (0)
Corruption	Medium (1)	High (2)	Medium (1)	Medium (1)	Low (0)	Medium (1)	Low (0)	Low (0)
Litigation and Compliance Risks	Very High (3)	High (2)	High (2)	Medium (1)	Medium (1)	High (2)	Medium (1)	Medium (1)
Transparency	High (2)	Medium (1)	Medium (1)	Medium (1)	Medium (1)	Medium (1)	Medium (1)	Medium (1)

Palm Oil Country Environment Assessment



	Fixed analysis		Micro-level assessment			Macro-level assessment		
	Relevance to the sector	Share of supply	Hazard loss exposure	Prospective Impact	Likelihood	Hazard loss exposure	Prospective Impact	Likelihood
Aggregate Producer Supply Hazards Score			Medium (1)			High (2)		
	<ul style="list-style-type: none"> Risks related to climate policy, resource nationalism and natural disasters and negative environmental events are pronounced for the sector. Individual firms' ability to shift suppliers places their individual level of risk exposure at medium, but since this is less of a possibility at the national level, the risk is assessed as being high at this level. 							
Climate change policy	High (2)	High (2)	High (2)	Medium (1)	High (2)	Medium (1)	Medium (1)	Medium (1)
	<ul style="list-style-type: none"> Germanwatch and the Climate Action Network's Climate Change Performance Index (CCPI) rates Indonesia and Malaysia's present level of emissions very favourably, but highlights a very poor record with respect to pending emissions profile development, and the country's energy efficiency and climate policy are rated as poor (Burk, Marten & Bals, 2013). India is assessed more favourably, for reasons similar to those above, but with the exception of a relatively more favourable assessment of its climate policy; overall the country's CCPI score is assessed as being moderate. Land use and land change associated with the palm oil sector can have strong impacts on emissions, therefore supplier country's climate policy is highly relevant to the sector. 							
Resource nationalism	Medium (1)	Medium (1)	Medium (1)	High (2)	Low (0)	Medium (1)	High (2)	Low (0)
	<ul style="list-style-type: none"> Maplecroft's Resource Nationalism Index (RNI) investigates factors such as risk of outright nationalization and expropriation, export freezes or restrictions, and increases in taxes on revenues and places the risk associated with resource nationalism at high risk for Indonesia, and moderate risk for Malaysia and India (Maplecroft, 2012). Supply restrictions associated with resource nationalism are less of a factor for agricultural commodities than for minerals. Nevertheless, the possibility exists for nationalization processes to occur with respect to agricultural land and forest land that might otherwise be converted to palm oil production. 							
Natural disasters and negative environmental events	Very High (3)	Very High (3)	Very High (3)	Very High (3)	Medium (1)	Very High (3)	Very High (3)	Medium (1)
	<ul style="list-style-type: none"> Indonesia is assessed to be highly risk exposed with respect to natural disasters and environmental degradation because of its very high degree of exposure combined with its high degree of vulnerability with respect to coping and adaptive capacities. Malaysia and India are assessed to have a moderate level of risk because of high exposure and low vulnerability in the case of Malaysia, and low moderate exposure and high vulnerability in India (Alliance, 2012). Natural disasters and environmental factors have a strong possibility of negatively impacting agricultural production, especially monocrop agriculture, which is prominent in palm oil production. 							
Strength of governance	High (2)	High (2)	Medium (1)	Low (0)	Low (0)	High (2)	High (2)	Low (0)
	<ul style="list-style-type: none"> Indonesia and India present governance-associated risks with regard to government effectiveness, regulatory quality, rule of law, corruption and political stability, particularly in India (World Bank, 2013). Malaysia is assessed more favourably with regard to governance related risks, with the exception of voice and accountability, an area where India and Indonesia score comparatively well. Poverty is an issue in India and also in Indonesia, and poor governance could conceivably lead to major impacts on the agricultural sector given the food insecurity these countries face. These impacts could affect palm oil supplies. Individual enterprises could cope with these changes by changing their supply mix, but this is less possible at the national level. 							
Trade and interconnectivity	Low (0)	High (2)	Medium (1)	High (2)	Low (0)	Medium (1)	High (2)	Low (0)
	<ul style="list-style-type: none"> India was found in the International Chamber of Commerce's Open Markets Index (2013) to have below average levels of trade openness, the lowest of the G20; Malaysia and Indonesia (the largest supplier countries) were both found to be average. Malaysia was at the higher end, with more favourable openness and strong infrastructure, while Indonesia was found to be less open, and to have relatively weak trade related infrastructure. Palm oil is an export crop for the supplier countries and is less likely than some other commodities to be consumed domestically; therefore although supplier nations' trade openness is a factor, so long as policies more or less adhere with international norms, the risk of trade policy related disruptions is minimal. 							
Competition and markets	Medium (1)	Low (0)	Medium (1)	Medium (1)	Low (0)	Medium (1)	Medium (1)	Low (0)
	<ul style="list-style-type: none"> Malaysia and Indonesia, the two biggest suppliers, score well on the World Economic Forum's Global Competitiveness Index (2013). Malaysia scores tenth place with respect to its efficient and competitive market for goods and services, and also scores well with respect to its business related institutional framework. Indonesia scores less well than Malaysia, but has made improvements with respect to infrastructure and its labour market. India has been falling in its position in the index in recent years, currently at 60th place, largely due to infrastructure challenges, which along with corruption are a major impediment to doing business in the country. The lack of business sector reforms is also an issue. 							
Knowledge and access to information	High (2)	Low (0)	Medium (1)	Medium (1)	Low (0)	Medium (1)	Medium (1)	Low (0)
	<ul style="list-style-type: none"> All supplier countries are relatively well positioned in terms of knowledge and access to information. Although knowledge and access may not have trickled down to all members of society, Malaysia and India possess high levels of human capital in certain technology sectors, and Indonesia's technological readiness in the private sector has been improving in recent years (World Economic Forum, 2013). Palm oil production occurs largely on large plantations rather than through smallholders, therefore the risks associated with poor access to information and knowledge are less pronounced, since these plantations likely have little trouble securing relevant information related to production and trade. 							

Appendix 2: Palm oil economic actors

In 2011, among the importers of palm oil in China, foreign investment enterprises and private enterprises accounted for 80 per cent of palm oil imports (Global Environmental Institute, 2013). Between 2007 and 2011, imports of foreign investment enterprises accounted for 51.7 per cent of total imports while, over the same time period, imports to private enterprises were about 30 per cent (Global Environmental Institute, 2013). State owned enterprises accounted for approximately 10 per cent of total imports in 2011 (Global Environmental Institute, 2013).

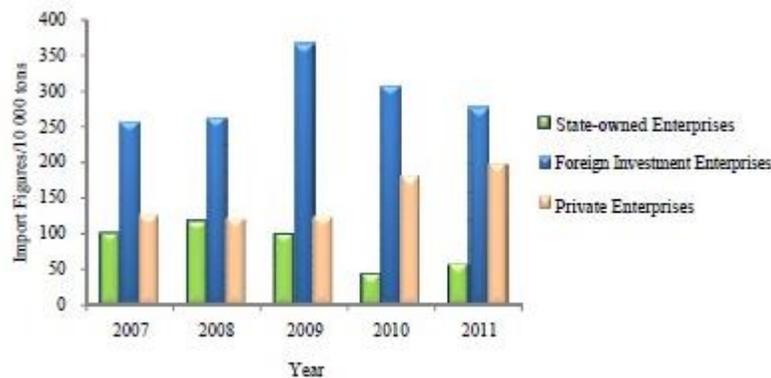


Figure F-11 Palm Oil Imports by Enterprises Type, 2007-2011

FIGURE 10. PALM OIL IMPORTS BY ENTERPRISE TYPE, 2007-2011

Source: Global Environmental Institute (2013)

The top 10 largest importers are mainly foreign investment enterprises and private enterprises, including both commodities traders such as Bunge and Cargill, and users such as McDonalds and Unilever (Tao, 2009). Between 2007 and 2011, the proportion of annual imports by these 10 enterprises increased from 44 to 53 per cent of total (Global Environmental Institute, 2013). However, during these five years, the number of foreign investment enterprises in the top ten dropped from six to four, and that of private enterprises increased from two to five (Global Environmental Institute, 2013). The top palm oil consuming enterprises in China are the following (Tao, 2009):

- Bunge
- Cargill
- China National Cereals, Oils and Foodstuffs Corporation (COFCO)
- L'Oreal
- Master Kong
- McDonalds
- Uni President China Holdings
- Unilever
- Yihaikerry
- Yum! Brands Inc.

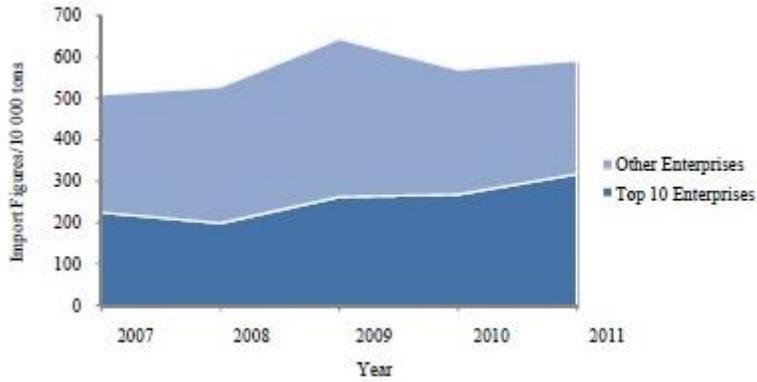


FIGURE 11. PALM OIL IMPORT VOLUMES OF TOP TEN IMPORTING ENTREPRISES, 2007-2011

Source: Global Environmental Institute (2013)

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