

ADDRESSING ENVIRONMENTAL,
SOCIAL, AND ETHICAL
CHALLENGES OF THE ANNUAL
HAZE IN SOUTHEAST ASIA FROM
A SINGAPOREAN PERSPECTIVE

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Summary

This paper aims to identify how ethical principles and sustainability science could be applied to addressing the transboundary haze issue from Singapore's point of view. The research was mainly literature review, with primary research including surveys and stakeholder consultation. Analysis was done through the lens of the Universal Declaration on Bioethics and Human Rights and best practices based on sustainability science.

Transboundary haze is an annual air pollution crisis that has severe impacts on human health, environment, society, and economy. Therefore, the bioethics principles "social responsibility and health", "equality, justice and equity", "protection of the environment, the biosphere and biodiversity" and "protecting future generations", provide the ethical imperative to take action on haze. The haze originates mainly from unsustainable agricultural practices in Indonesia and Malaysia carried out by the palm oil, pulpwood and timber industries. These industries are linked to buyers and financiers, including from Singapore.

To tackle the haze issue, all stakeholders must collaborate. As chair of ASEAN in 2018, Singapore should set itself the following priorities: (i) initiate and support the harmonisation of sustainability standards across the region, (ii) promote sustainable finance and (iii) increase its contribution to the ASEAN Haze Fund to implement the Haze-free Roadmap, especially in the matter of peatland restoration.

Background and research objectives

Transboundary haze is a recurring large-scale air pollution problem in Southeast Asia, affecting multiple countries in the region. Large-scale uncontrolled fires destroy crops and property while creating thick smoke that can travel thousands of kilometres, impacting Indonesia, Malaysia, Singapore, Brunei, Thailand and the Philippines (Harvey, 2015). It disrupts the lives of millions of civilians and has an impact on health, environment and economies, resulting in billions of dollars' worth of damage every time it occurs (World Bank, 2016).

Such haze incidents have occurred regularly in Singapore since the 1970s (Tan, 2016). Singapore continued suffering from episodes of the haze, of which 2015 was a particularly severe episode that lasted for two months.

Transboundary haze is a complex issue with multiple actors and shared responsibility across national borders. While it may be easy to identify certain countries as the culprits setting their forests on fire, the haze issue is far more complex, with a web of financial, trade and geopolitical factors. It is pertinent for nations to act together in order to solve the issue.

Bioethics and sustainability have extended to climate change and their general principles form an international legal foundation for protecting biodiversity and the environment. These principles can also be applied to the transboundary haze issue in Southeast Asia. The UNESCO Universal Declaration on Bioethics and Human Rights also provides many basic tenets of environment protection that can be used in the haze situation to bring nations together and work on solutions.

There are a wide range of agricultural sustainability standards that serve to set a common understanding among stakeholders regarding sustainable agricultural practices and as tools for stakeholders such as buyers, financiers and governments to hold growers accountable. These standards however, were not developed specifically with the haze in mind and so their effectiveness in addressing the haze problem deserves further analysis.

This paper was written with the recognition that bioethics and sustainability science need to be considered in decisions taken by governments, businesses, and civil society.

This research shows how, from the perspective of Singapore, universal ethical principles can be translated into concrete action on the ground, based on scientific knowledge, to address the haze problem. Specifically, the objectives of this research are to:

- Highlight the ethical imperative to take action on haze and show the interlinkages between causes, impacts and solutions of haze with the universal bioethical principles
- Investigate the health, environmental and socio-economic impact of the haze on Singapore
- Analyse the overall geopolitical picture and inter-state relations over the haze issue, including the role of unilateral, bilateral and multilateral mechanisms such as ASEAN to address the problem

- Identify the sustainability standards that are most effective in addressing the haze problem
- Identify best practices and develop recommendations for Singapore-based actors (commodity buyers, financial institutions, government, civil society) to prevent haze

Beneficiaries and impact

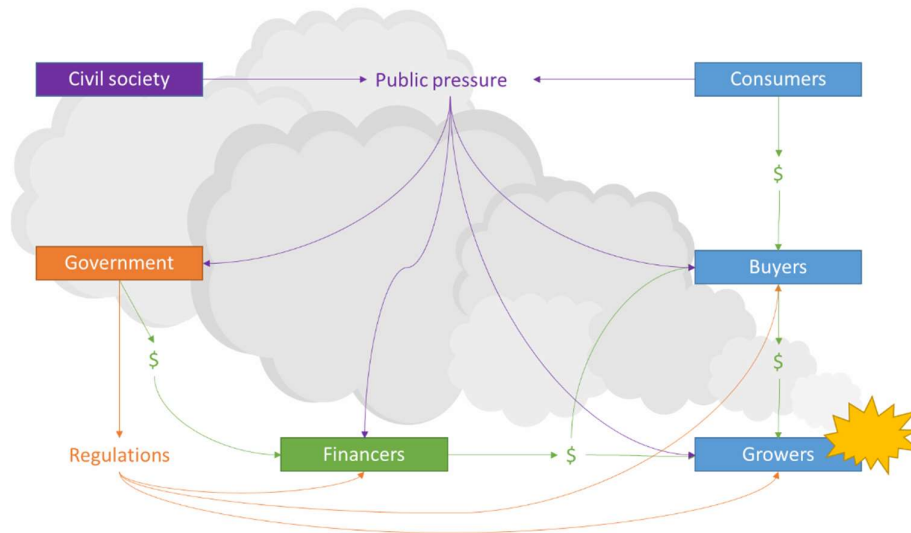


Figure 1 Stakeholders in the haze issue

The key stakeholders in Singapore that can help address the haze are palm oil and paper growers and buyers, financial institutions, government and civil society (comprising of non-governmental organisations and consumers). The growers directly manage the land and thus are able to lower the risk of fire, while the remaining stakeholders can directly or indirectly influence the growers.

These stakeholders can use this paper as motivation and guidance on actions to prevent haze.

For businesses, taking action to stop haze would mean adopting many of the practices necessary for sustainability, which in the long run would lead to sustainable economic benefits.

In the process of working together for a shared goal, Singapore will benefit from developing constructive and friendly relationships with neighbouring countries and peoples.

Civil society will have the opportunity to develop experience and confidence in advocating for positive change.

Ultimately, when Southeast Asia becomes haze-free, there will be immense benefits for the people and biodiversity in countries affected by the haze, while the reduction in climate-changing carbon emissions will mean future generations and global population benefit too.

Methods

This paper focused on the transboundary haze issue and possible solutions from Singapore's point of view.

Firstly, existing literature was reviewed to derive the impacts of the haze on Singapore as well as the direct causes of haze. The role of Singapore was then examined by looking at Singapore's link to the trade and finance of the palm oil and paper industry.

The literature reviewed were mainly scientific journals, NGO reports, statutes, news articles and documents for sustainability standards.

Where there were gaps in existing literature, primary research was done. Primary research comprised of a face-to-face survey conducted among 75 eateries in Singapore to assess the type of cooking oil used, as well as email interviews of 3 farmers in Singapore to assess the impact of the haze on their business. The various sustainability standards for palm oil and paper were also assessed on their effectiveness in preventing the haze based on (i) the relevance of their criteria to addressing causes of haze, (ii) impact in terms of how widely the standard currently is and potentially will be adopted by growers, and (iii) trustworthiness and commitment to improvement.

The standards reviewed were Roundtable on Sustainable Palm Oil (RSPO), RSPO Next, Rainforest Alliance/ Sustainable Agriculture Network (SAN), Singapore Green Label Scheme (including revised criteria for paper or SGLS+), Forest Stewardship Council (FSC), Programme for the Endorsement of Forest Certification (PEFC), Indonesian Sustainable Palm Oil (ISPO), Malaysian Sustainable Palm Oil (MSPO), Sistem Verifikasi Legalitas Kayu (SVLK), Palm Oil Innovation Group (POIG) and No Deforestation, No Peat, No Exploitation (NDPE).

The principles in the Universal Declaration on Bioethics and Human Rights (2005) (UNESCO, 2005), referred to as "bioethics principles" in the rest of the document, were then used to define why there is an imperative to act and to guide our recommendations on how existing solutions should be modified or scaled-up. These recommendations focused on the growers and the key stakeholders in Singapore: the palm oil and paper commodity sectors, finance sector, government and civil society.

Finally, consultations with stakeholders were done to obtain their feedback on the recommendations, which were then further refined. Stakeholders consulted were from the Singapore government, think tanks, finance experts, RSPO and international NGOs.

Results

Impact of transboundary haze in Singapore

Haze is largely composed of particulate matter, of which 40 to 95% is in the PM_{2.5} range, or less than 2.5 μ m in diameter (Heil & Goldammer, 2001).

Exposure to haze air pollutants can cause respiratory symptoms and aggravate existing heart or lung disease. It may also cause irritation of the eyes, nose and throat in healthy individuals. Children, elderly, and people with chronic lung disease or heart disease are the most seriously affected (Ministry of Health Singapore [MOH], 2016).

According to a study of over 8500 cases by Singapore General Hospital, the risk of cardiac arrest increased by 30% when the Pollutant Standards Index (PSI) level is above 100 (Ng WY, 2017).

Being confined indoors can cause feelings of anxiety, sadness and helplessness (Gordon, 2015). A Singaporean study suggested that a haze crisis is associated with acute physical symptoms and mild psychological stress (Ho et al., 2014).

The haze-causing fires generate a large amount of greenhouse gas emissions. During the 2015 haze, the daily emissions from Indonesia's fires exceeded the daily emissions from the US economy on 38 days (Harris, Minnemeyer, Stolle, & Payne, 2015) (Neo, 2016).

Greenhouse gases are a major contributor to global warming and climate change. From 1972 to 2014, the annual mean temperature in Singapore has increased from 26.6°C to 27.7°C. It has been estimated that climate change would lead to a temperature increase in Singapore of 1.4°C to 4.6°C by the end of the century (Ministry of the Environment and Water Resources (MEWR), 2017).

Haze has an adverse effect on animal health. For example, one study found that the bird abundance at the Ecolink over the Bukit Timah Expressway was "substantially impacted" by the 2015 haze episode (Lee, Davies, & Struebig, 2017).

Haze episodes affect the ability of plants to photosynthesise. During the severe haze in 1997 and 1998, plant leaves and trees were observed to turn brown more quickly. Nurseries said that their plants dried up faster than usual (Kit, 2017).

During haze episodes, nitrogen and phosphorus concentrations in coastal waters off Singapore increased by three to eight orders of magnitude (Jaafar & Loh, 2014). Accumulation of particulates and gases in seawater may cause coral bleaching and eutrophication.

Tourism is one of Singapore's most important industries, constituting about 6% of Singapore's GDP, is also particularly susceptible to haze (O'Callaghan, 2013).

Farms in Singapore shared that the haze impacted their revenue due to both reduced productivity and decrease in visitors. A goat farm shared that their goats were "slightly stressed" so "milk production slightly dropped" (Hay Dairies, pers. comm., September 27, 2017), while a

vegetable farm revealed that the haze “lessen(ed) the sunlight hence affecting the growth” (Liao, F., pers. comm. September 26, 2017). Another farm which relies on visitors shared that during both the 2013 and 2015 haze, “event and programme cancellations were as bad as 50% and revenue fell accordingly” (Foo, M., pers. comm., September 29, 2017).

The cost of the 2015 haze episode to Singapore was estimated at S\$700 million (Barratt, 2016).

Causes of transboundary haze

Indonesia’s large-scale fires and haze originate from a combination of:

- a) larger scale and more frequent use of fire to clear land, claim tenure or as a weapon;
- b) emergence of fire-prone landscapes due to deforestation and peat drainage; and
- c) inability or unwillingness to stop fires early due to poor fire-fighting capacity and lack of governance.

Some migrant farmers use slash and burn to claim land (Palm, Vosti, Sanchez, Tomich, & Kasyoki, 2005), while some companies, mainly pulpwood and oil palm growers, also use fires for large scale clearing (The Jakarta Post, 2015).

Land rights of communities in Indonesia are unclear and there are often competing claims over a plot of land, with fire sometimes being used as a weapon (Colfer, 2002).

Deforestation and drainage of peat swamps create fire-prone landscapes. Loss of trees results in lower humidity and drier local climate (Uhl & Kauffman, 1990). Peat fires are much harder to detect and extinguish than normal fires (Turetsky et al., 2015). In just 8 years from 2007 to 2015, 1.8 million hectares or 28% of peat swamp forests in Peninsular Malaysia, Sumatra and Borneo were lost, majority for industrial plantations (Miettinen, Shi, & Liew, 2016). For the above-mentioned regions in 2015, the majority of industrial plantations on peat are oil palm plantations (73%), while most of the remainder are pulp plantations (26%) (Miettinen et al., 2016).

When fires break out in fire-prone landscapes, communities and companies may not have sufficient monitoring capacity to detect the fires early and fire-fighting capacity to suppress the fires (Hutan Kita Institute - HaKI et al., 2016).

Assessment of sustainability standards

A wide range of sustainability standards for palm oil and paper has been developed in recent years to provide growers with guidance in implementing sustainable practices. A detailed analysis of existing standards and their effectiveness as a proxy to haze-free standards can be found in Appendix A.

A “No Deforestation, No Peat and No Exploitation” (NDPE) policy is a set of principles increasingly adopted by the palm oil and pulp and paper sectors. For traders and processors, the policy is generally expected to cover not only a company’s own plantations, but also third-party suppliers, giving it more reach than traditional certification standards (Aidenvironment, 2017). A 2016 study estimated that 60% of global palm oil production is covered by NDPE policies (Chain Reaction Research, 2016). However, as NDPE lacks a regulatory body, it remains

reliant on NGOs for verification and lacks a single harmonised criterion. Companies are also expected to develop their own in-house grievance and traceability systems.

Among the regulated palm oil standards, the Roundtable on Sustainable Palm Oil (RSPO) certification system remains the most widely adopted, with 19% of global palm oil certified as of September 2017 (RSPO, 2017). RSPO criteria ban the use of fire to clear land, limit new development on peat, and mandate management of water levels in existing plantations on peat, while protecting primary and high conservation value (HCV) forests and land rights of local communities (RSPO, 2013).

Mandatory standards such as MSPO and ISPO hold much potential because of their landscape-wide coverage and support from their respective national governments. However, their criteria are relatively lax, with ISPO allowing development on peat up to 3m deep, and MSPO having no restrictions on new development on peat. Greater independent, third-party oversight and transparency are also needed.

The Singapore Green Label scheme has a wide range of products bearing their label but it lacks a grievance system, whole-of-company criteria and transparency.

Among the regulated paper standards, Forest Stewardship Council (FSC) certification is supported by global environmental organisations such as Greenpeace and WWF. Its criteria ban uncontrolled fires and allow only very limited clearance of natural forests, but does not address the issue of peat (FSC, 2015). The Singapore Green Label Scheme with revised criteria for paper (SGLS+) mandates management of water levels in existing plantations on peat but does not restrict new plantations on peat. Sistem Verifikasi Legalitas Kayu (SVLK), also known as the Indonesian Timber Legality Assurance system, aims to ensure timber products in Indonesia originate from legal sources and has certified all timber concessions and pulpwood plantations in Indonesia (EU FLEGT Facility, 2017). SVLK has been recognised by the European Union (EU FLEGT Facility, 2017).

Besides sustainable conventional agriculture, there are forest- and peat-friendly agricultural methods which allow for agricultural production while keeping forests and peatlands in their natural state. Examples of forest-friendly agriculture includes agroforestry and harvesting of non-timber forest products (NTFP) such as wild honey, rattan and illipe butter. Peat-friendly agriculture, also known as paludiculture, refers to the cultivation of native wetland crops, such as sago, without the use of drainage.

Singapore's link to the palm oil and paper industry

Singapore is linked to the palm oil and paper industry through direct consumption of palm oil and paper products, as the location for company premises and as a provider of credit and investment finance.

Palm oil is widely used as cooking oil among eateries in Singapore. According to a PM Haze survey, 46 out of 75 eateries surveyed use palm oil in their cooking oil (Appendix A).

Singapore is also a major consumer of paper and cardboard on a per capita basis, with 1,183,100 tonnes of paper and cardboard used in 2016 (National Environment Agency, 2017) or 211 kg per capita.

Nine palm oil companies are listed on the Singapore Stock Exchange (Appendix C). One of the largest biodiesel plants in the world is located in Singapore, and uses palm oil, palm waste and waste animal fat as feedstock (Eco-Business, 2011). APRIL and Asia Pulp and Paper (APP), the two companies with the largest pulp concessions in Indonesia have either their headquarters (APRIL) or have an office (APP) in Singapore.

All three Singaporean banks, OCBC, DBS and UOB, are major financiers of the regional palm oil industry and other industries producing high-risk forest commodities. A study showed that 15 banks, including all 3 Singaporean banks, provided 72% of direct loans to 16 major palm oil companies from 2006 to 2015 (Climate Reaction Research, 2017).

Singapore owns sovereign wealth fund GIC and investment company Temasek Holdings. Temasek Holdings is the majority shareholder of Olam, a major palm oil trader (Olam, 2017). GIC also invests in palm oil companies based in Indonesia (Channel NewsAsia, 2016).

Discussion

Bioethical considerations about haze impacts

The severe health impacts of the haze clearly result in the violation of the bioethics principle “social responsibility and health” (Article 14), which outlines that the “enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being”. Therefore, governments and all sectors of society have the responsibility to prevent haze and mitigate its impacts.

The health impacts of the haze tend to be more severe for vulnerable groups such as children, elderly and the sick. Compared to the rich, the poor also tend to have less ability to afford mitigation measures such as air-purifiers, facemasks or overseas travel to escape the haze (Shaffer, 2015). The haze therefore is also a social justice issue, in violation of the bioethics principle “equality, justice and equity” (Article 10).

The bioethics principle “protection of the environment, the biosphere and biodiversity” (Article 17) is also compromised with the wide-ranging environmental impacts of large-scale fires and haze.

The carbon emissions and its global warming effect are accumulative, and thus would have greater impact on future generations. The bioethics principle “protecting future generations” (Article 16) therefore should compel us to consider not just the current, but also the future impacts of haze.

What can Singapore’s commodity sector do?

Given the clear evidence that unsustainable agricultural practices harm society and the environment, and the fact that there are already best practices to avoid such harm, it becomes an ethical imperative that companies that are part of the palm oil and paper supply chains should minimise harm as stated in the bioethics principle “Benefit and Harm” (Article 4).

Sustainable practices such as mechanical clearance tend to come with a higher cost (Varkkey, 2013). To incentivise growers to adopt sustainable practices, buyers such as traders, product manufacturers, retailers and food-service companies should commit to sustainable sourcing. This is where standards can play a role in holding growers accountable.

NDPE has the potential to spread the fastest, and thus rapidly propagate the principles of no deforestation, no peat and no exploitation. Therefore, growers, traders and processors of palm oil and paper should implement robust NDPE policies that include their suppliers and report annually on their progress (Appendix D).

However, because the NDPE criteria is not standardised, it is difficult for governments and consumers to base their procurement and buying decisions on them. Certification and legislation would still be necessary to provide standardisation, as well as supporting systems like grievance and traceability.

In Singapore, RSPO-certified cooking oil is already widely available, with at least 3 suppliers which can provide RSPO-certified cooking oil to eateries and 6 brands of retail-size RSPO-certified cooking oil (Appendix B). Therefore, eateries, manufacturers, and retailers in Singapore that use palm oil for cooking oil should switch to RSPO-certified sources.

Currently, none of the sustainability standards for paper adequately address the haze issue as they do not address problem of new peat development. In the meanwhile, paper buyers should therefore focus on reduction of paper consumption to reduce the demand to clear more forests.

What can Singapore's financial sector do?

Financial institutions and retail investors can influence companies by tying access to loans or investments to compliance with sustainability standards. This is known as “responsible financing”. Financial institutions usually describe how they implement responsible financing via an Environmental, Social, and Governance (ESG) policy.

Singapore's sovereign wealth fund GIC and investment company Temasek Holdings have not publicly disclosed their ESG policies in detail, and as such, it is not known how much they have integrated sustainability criteria into their investment processes.

DBS, OCBC and UOB all have ESG policies, but DBS has gone further by setting a sector-specific standard for palm oil that states new customers need to have either an NDPE policy or RSPO certification. To address the haze problem, financial institutions should adopt ESG policies that apply NDPE to customers in the palm oil and paper industry.

Another important component of the ESG policy should be a requirement for customers with oil palm plantations to be RSPO members and have a time-bound plan for 100% RSPO certification.

Finally, in alignment with the bioethics principle “Decision-making and addressing bioethical issues” (Article 18), financial institutions should be transparent about the implementation of their ESG policy. They should publicly disclose sector-specific policies for high-risk industries, in particular agriculture and forestry. In addition, they should publish a list of clients they lend money to in high-risk sectors. This would allow stakeholders to assess the policy implementation.

To understand industry issues and best practices, build capacity and be part of the decision-making process, financial institutions can become members of international bodies such as Banking Environment Initiative (BEI), Equator Principles, Principles for Responsible Investment (PRI) and RSPO.

What can Singapore government do?

To ensure good air quality for its citizens, the Singapore government has attempted many ways to tackle the haze, with varying results.

The Transboundary Haze Pollution Act (“THPA”) was enacted by Singapore to criminalise activities that contribute to haze in Singapore (Transboundary Haze Pollution Act, 2014).

However, in 2016, a court warrant issued against a director of an Indonesian firm triggered unhappiness among some parties in Indonesia.

Indonesia felt that the setting of fires on its soil by Indonesian citizens was its domestic issue, and so it should have autonomy to carry out its own laws, and any foreign offer of assistance must require its consent (The Straits Times, 2016).

Considering that view, it might be useful for Singapore to take guidance from the bioethics principles “Autonomy and individual responsibility” (Article 5) and “Consent” (Article 6).

Indonesia has shown that it is willing to accept bilateral agreements where it holds the right to give consent. For example, in 2005 and 2015, Indonesia accepted Singapore’s offer to provide military aircraft for cloud seeding and firefighting operations. From 2007 and 2011, Indonesia had an agreement with Singapore and Malaysia to work with Jambi and Riau provinces respectively to enhance their fire-prevention and fire-fighting capacity (Majid, 2007).

Similarly, there was no backlash when the Singapore government incorporated sustainable paper into its public procurement policy, or when the Association of Banks in Singapore released guidelines for banks in Singapore to adopt environmental, social, and governance policies.

Promoting sustainable business practices in Singapore is considered within Singapore’s jurisdiction and responsibility. As per the bioethics principle “Role of States” (Article 22), Singapore can take legislative and administrative measures to promote sustainable practices while supporting in the sphere of education, training and public information.

The Singapore government should support the uptake of sustainable palm oil, for example by including in its green procurement policy that palm oil used for cooking oil should be certified sustainable, with RSPO as the current acceptable standard.

In the finance sector, the Singapore government can promote responsible finance by encouraging all financial institutions in Singapore to develop and be transparent in their Environmental, Social, and Governance (ESG) policies, while supporting investments and loans for sustainable palm oil and forest- and peat-friendly agriculture.

The Singapore Stock Exchange (SGX) has helped promote transparency among its listed companies by mandating them to have sustainability reports on a “comply or explain” basis. SGX can build on that by putting in a timeframe for listed companies to improve their sustainability reporting standards, such as by obtaining third party assurance and engaging in stakeholder consultation

Singapore has also been able to advance the cause considerably through its active membership in ASEAN.

Through ASEAN’s regional haze cooperation initiatives, a fire danger rating system for Southeast Asia was developed to provide early warning of the potential for a serious fire and haze event (Groot, Field, Brady, Roswintiarti, & Mohamad, 2006). ASEAN member states have also been actively involved in the ASEAN Peatland Management Strategy 2006 – 2020. The

ASEAN Haze Fund was also created in 2006 and received contributions from many countries, including Singapore. In 2015, new impetus was given when all member states committed to a Roadmap on ASEAN Cooperation towards Transboundary Haze Pollution Control with Means of Implementation (“Haze-free Roadmap”) that included a target of haze-free ASEAN by 2020.

ASEAN’s response to the haze is adherent to the ASEAN Way (AW), where behavioural norms include mutual respect for state sovereignty and independence, non-interference in the internal affairs of another state, and the settlement of disputes through peaceful means. Relevant procedural norms include reliance on informal and incremental arrangements, non-confrontational diplomacy, and a “consensual and consultative decision-making approach” (Loke, 2005).

These norms parallel the bioethics principles “Autonomy and individual responsibility” (Article 5), “Consent” (Article 6) as well as “Solidarity and cooperation” (Article 13) and “International cooperation” (Article 24).

Currently, individual ASEAN member states are developing their own sustainability and legality standards for palm oil and paper, such as MSPO, ISPO and SVLK, as well as frameworks and policies for responsible finance. Air quality indexes and targets also differ from country to country.

Singapore as ASEAN Chair in 2018 can initiate an ASEAN-wide harmonisation of standards and regulations for palm oil, paper, finance and air quality.

Indonesia set up the Peat Restoration Agency (*Badan Restorasi Gambut or BRG*) in 2016 with a goal of restoring 2 million hectares of degraded peatland by 2020. The World Bank has estimated the initial cost at US\$2.1 billion. BRG Head, Nazir Foead has said that funding from company donations and government grants is insufficient and hopes for more foreign funds (Mongabay Haze Beat, 2016).

In line with the principle of solidarity and cooperation, Singapore can increase its contribution to the ASEAN Haze Fund to be channelled to peat protection and restoration projects and to implement the Haze-free Roadmap.

What can Singapore’s civil society do?

Civil society, comprising of non-governmental organisations (NGOs) and ordinary people, can play an important role in stopping haze through responsible consumption, education, advocacy, capacity building for businesses and international collaboration.

By avoiding overconsumption of vegetable oil and paper, consumers can reduce pressure on producers to clear land to meet the demand. Consumer can choose to buy forest- and peat-friendly products as well as certified sustainable palm oil products to influence businesses towards haze-free practices.

Consumers can also urge businesses to be more transparent and adopt sustainable practices. For example, in October 2017, two teenage students ran a successful online petition urging two eatery chains to switch to sustainable palm oil (SOS Against Haze, 2017).

Current awareness about sustainable palm oil and responsible finance among Singaporean public and businesses is low, pointing to a need for NGOs to scale up awareness outreach. Out of the 46 eateries that use palm oil in the PM Haze survey, only one was aware of sustainable palm oil. After our outreach, two eateries which had been using conventional palm oil switched to sustainable palm oil.

NGOs can play an important role in capacity building for businesses. For example, the Singapore Institute of International Affairs (SIIA) created the Collaborative initiative for Green Finance in Singapore to explore green financing possibilities for banks and come up with a framework to assess green practices of borrowers (Othman, 2017).

The bioethics principle “Sharing of benefits” (Article 15) advises that benefits resulting from any scientific research and its applications should be shared with society as a whole and within the international community.

Academic institutions and other NGOs can help conduct research on important topics related to the haze such as sustainable peatland management and the actual impact of various sustainability standards. NGOs can also promote transparency by monitoring and publishing reports on practices of companies.

Non-state actors can play an active role in international collaboration through fostering people-to-people connections.

Since 2016, PM Haze has been working with Malaysian and Indonesian non-governmental organisations and government agencies on peat restoration efforts in both countries. In 2017, PM Haze and SIIA collaborated to facilitate media coverage of community-led fire-prevention efforts in Sungai Tohor, Indonesia, and how Singaporeans can support these efforts (Arshad, 2017).

NGOs should scale-up their support for ground projects in the region, including but not limited to forest- and peat-friendly agriculture development, community empowerment, mapping and conservation.

Conclusion and recommendation

There is an ethical imperative for action to be taken to end haze because of its severe health, economic, social, environmental and political impacts. Thankfully, promising steps have been taken in recent years by stakeholders in Singapore and the region to address the problem. At a government or inter-government level, the Indonesian Peat Restoration Agency was created and the ASEAN Haze-free Roadmap was adopted. In the agricultural industry, growers and traders are increasingly adopting No Deforestation, No Peat and No Exploitation (NDPE) policies and sustainability standards. On the finance side, the Singapore Stock Exchange (SGX) has helped promote transparency among its listed companies by mandating them to have sustainability reports. Lastly, thanks to the guidelines released in 2015 by the Association of Banks in Singapore, all Singaporean banks adopted Responsible financing frameworks in 2017.

Singapore's chairmanship of ASEAN in 2018 comes at an opportune time to add urgency to the haze-free ASEAN 2020 goal. This conclusion will highlight three key issues that Singapore must address in priority (full list of recommendations in Appendix E). Firstly, in Singapore, the government, financial institutions, eateries and retailers should set an example by supporting sustainable palm oil, paper and finance, based on NDPE and Roundtable on Sustainable Palm Oil (RSPO) standards. Secondly, Singapore should initiate and support the harmonisation of sustainability standards across the region in the palm oil, paper and finance sectors. This harmonisation should define common baseline standards across the region that can, later on, progress to best practices. Lastly, Singapore should increase its contribution to the ASEAN Haze Fund to implement the Haze-free Roadmap, especially peat protection and restoration.

Civil society can scale-up their support for the haze-free ASEAN goal through education, advocacy and capacity-building for sustainable consumption and finance, as well as collaboration with actors in other ASEAN nations especially on ground projects and research.

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Appendix A: Analysis of sustainability standards

In this appendix, we will evaluate selected existing sustainability standards for palm oil and paper and their effectiveness as a proxy to haze-free standards.

We categorise the standards into two types: regulated and non-regulated.

Regulated standards have a regulatory body that ensures companies that subscribe to the standard comply with a common set of criteria and processes.

Regulated standards can be further divided into various types:

- **Voluntary certification standards** have a global reach and include end-product labelling to allow consumers to verify that their product is produced in accordance with the prescribed standards.
- **Mandatory national standards** cover, or are intended to cover, all growers in the country.
- **Voluntary initiatives** are for growers who want to apply more stringent criteria than mass market standards.
- **Labelling schemes** have multiple criteria covering life cycle considerations. Some labelling schemes require the submission of documents proving third-party verification (Global Ecolabelling Network (GEN), 2004), while others do not require formal certification. Labelling schemes may also cover multiple types of products and agricultural commodities.

Non-regulated standards consist of broad principles, although the exact criteria and indicators differ from company to company.

Below we will analyse in detail the main standards currently available.

Voluntary certification standards

Roundtable on Sustainable Palm Oil (RSPO)

Established in 2004, the RSPO is a non-profit organisation that encompasses stakeholders from seven sectors of the palm oil industry: oil palm producers, processors or traders, consumer goods manufacturers, retailers, banks/investors, and environmental and social non-governmental organisations (NGOs). The RSPO works together with these stakeholders to develop and implement global standards for sustainable palm oil (Roundtable on Sustainable Palm Oil (RSPO), n.d.).

Criteria

- Criteria include banning the use of fire for land preparation, managing water levels in existing plantations on peat, limiting new developments on peat, banning the clearance of primary forest or areas with High Conservation Value (HCV), and recognising local communities' land rights based on principles of Free Prior and Informed Consent (FPIC).

Impact

- The RSPO is the most widely adopted and recognised certification standard for palm oil globally. As of August 2017, 19% of global crude palm oil is certified by RSPO.
- RSPO criteria regarding new development applies to all plantations operated by RSPO members, regardless of whether there is an intention for these plantations to be certified.
- Smallholder inclusion is a challenge. Just 12% of RSPO-certified area globally is owned or managed by smallholders, although smallholders produce 40% of the world's palm oil. There is a steep barrier to entry for smallholders to adopt certification, although there are various schemes actively looking to address this, for example through jurisdictional certification programmes which bring together all stakeholders within a district or state to ensure the entire region is certified.
- The RSPO has recognised the importance of smallholders and the need for improving smallholder inclusion in the RSPO system. During the 12th General Assembly in November 2015, the RSPO passed Resolution 6f, which called for the development of a comprehensive strategy and action plan to realise the full potential of smallholders. In March 2017, the RSPO Board of Governors approved the strategic framework that underpins the full RSPO Smallholder Strategy (Roundtable on Sustainable Palm Oil (RSPO), 2017).

Trustworthiness

- As a multi-stakeholder grouping, the RSPO includes many environmental and social NGOs that provide checks and balances on RSPO's criteria and processes.
- The level of transparency is high, with the following information publicly available on RSPO's website: standards, list of companies certified, audit forms, grievances, concession maps (with the exception of Malaysia, but including Sabah), and list of RSPO board members.
- The RSPO possesses a transparent grievance system that can be used to suspend errant companies and auditors.

- Challenges remain regarding the audit system, which may not be able to detect all cases of non-compliance. The audit system is also subject to conflicts of interest, because audit companies are hired by growers. RSPO has tried to address this issue by appointing an accreditation body to check on the auditors.
- Some NGOs criticise the RSPO criteria for not protecting secondary forests, which are not considered HCV areas, and for allowing limited new development on peat. Hence, the RSPO standards fall short of the “no deforestation” and “no peat” standards that have become widespread throughout the oil palm industry.

Improvement

- Commitment to improvement is shown by RSPO’s renewal of its Principles and Criteria every 5 years, as well as a large number of RSPO-led working groups that constantly develop improved procedures and processes.

RSPO Next

RSPO Next is a voluntary add-on to the standard RSPO criteria. RSPO Next has stronger protection for forests and eliminates new development on peat on any depth. However, as of September 2017, only one company, Colombia-based Daabon, has received RSPO Next certification.

Rainforest Alliance (RA)

Rainforest Alliance is a non-profit organisation that certifies more than 100 different varieties of crops, including oil palm, based on the Sustainable Agriculture Network (SAN) standard.

Criteria

- SAN criteria limit the use of fire to pest control and regulate it under strict conditions. They also ban the clearance of forests and HCV areas. Local communities’ land rights are respected under FPIC.
- Peat is not protected explicitly. Peat swamp forests are protected under the category of natural ecosystems, but there are no provisions covering non-forested peatland and existing plantations on peat.

Impact

- RA currently certifies growers in Central America and Papua New Guinea. There are currently no certified areas in Malaysia or Indonesia, although expansion plans exist (Rainforest Alliance, 2016).

Trustworthiness

- SAN is a coalition of non-profit conservation groups, and RA is also a non-profit organisation which reduces the risk of conflict of interest.

- A grievance system exists, but it lacks transparency.

Improvement

- Commitment to improvement is shown by RA's renewal of its criteria every 5 years.
- There is strong support for certified growers to improve via a learning and support programme. The standard contains a continuous improvement system that requires farms to gradually increase their compliance over a six-year period.

Forest Stewardship Council (FSC)

FSC is an international non-profit, multi-stakeholder organisation established in 1993 to promote responsible management of the world's forests. It certifies mainly timber products, including paper, but also non-timber products such as bamboo and recycled paper.

Criteria

- FSC bans uncontrolled fires, protects High Conservation Value (HCV) areas, and allows only very limited clearance of natural forests.
- Local community land rights are recognised, based on FPIC principles.
- Peat is not protected explicitly. Peat swamp forests are protected under the category of natural forests, but there are no provisions covering non-forested peatland and existing plantations on peat.

Impact

- FSC certification covers 5% of global forested area (Food and Agriculture Organization (FAO), 2016) and 8% of global wood production (Forest Stewardship Council (FSC), 2015).
- In 2015, FSC forests represented 5.6% of planted forests and 0.3% of all forests in Indonesia (including primary, secondary and planted forests) (Food and Agriculture Organization (FAO), 2014).
- FSC's Policy of Association mechanism can be and has been used to remove members that clear more than 10,000 ha or 10% of the forest areas under the member's responsibility in the past 5 years, whichever is higher, regardless of whether that area is or is intended to be certified.
- A study comparing FSC-certified and non-certified logging concessions in Kalimantan, Indonesia found that FSC certification reduced deforestation by 5%, though it had no statistically significant impact on fire incidence (Miteva et al., 2015).

Trustworthiness

- Members are divided into environmental, social, and economic chambers, which have an equal proportion of votes in the governing board and assembly, thus providing checks and balances on companies.
- A grievance system exists, but only Policy of Association disputes are publicly available on the website. Grievances against certificate holders have to be submitted to certification bodies,¹ with limited transparency in the process.

Improvement

- Criteria is revised every 5 years. Other processes and procedures are also constantly revised.

¹ FCS only designs the standard. Companies are audited by external Certification Bodies who evaluate their compliance to the standard.

Programme for the Endorsement of Forest Certification (PEFC)

PEFC is an international non-profit organisation established in 1999 to promote the sustainable management of forests. It does so through endorsement of national forest certification systems that meet PEFC's criteria, such as the Malaysian Timber Certification Council and the Indonesian Forestry Certification Cooperation.

Criteria

- The use of fire is not allowed except if it is “necessary for the achievement of the management goals of the forest management unit”.
- Conversion of forests to other land use types is restricted.
- Respect for local community land rights is mandated, based on FPIC principles.
- Peat is not protected explicitly. Peat swamp forests are protected under the category of natural forests, but there are no provisions covering non-forested peatland and existing plantations on peat.

Impact

- PEFC certification covers about 8% of global forest area.
- PEFC allows certified companies to operate non-certified plantations, thus allowing for a two-tiered system where the same company may produce certified products for more discerning markets, while causing environmental and social damage in uncertified areas.

Trustworthiness

- Members consist of companies and industry bodies. There is a lack of NGO oversight.
- Grievance mechanisms are devolved to national certification systems, which generally have limited transparency.

Improvement

- Criteria have to be reviewed every 5 years.

Mandatory national standards

Indonesian Sustainable Palm Oil Standard (ISPO)

ISPO was launched in 2011 by the Indonesian government to ensure the adherence of all palm oil plantations to government laws and regulations.

Criteria

- ISPO bans the use of fire to clear land, and requires the implementation of measures for fire prevention and suppression.
- Protection of forests is based on environmental impact assessments and the avoidance of forests zoned by authorities for conservation.
- New peatland development is allowed as long as maximum peat depth does not exceed 3 metres. Existing plantations on peat require the implementation of water management processes.
- Local communities' land rights have to be respected, although there is no specific requirement for FPIC.

Impact

- ISPO is mandatory for all plantation companies and voluntary for smallholders. This means that ISPO could have a large potential impact, although only 12% of planted area had been certified as of April 2017 (Ribka, 2017).

Trustworthiness

- There are no NGOs involved in the governance and oversight of the standard.
- There is a grievance system but transparency is low, with no publicly available information regarding grievances.

Malaysian Sustainable Palm Oil (MSPO) Certification Scheme

MSPO was launched in 2015 and is Malaysia's national scheme for certifying oil palm plantations.

Criteria

- MSPO bans land burning for waste disposal and land preparation.
- The protection of forests is limited to lands with high biodiversity value and environmentally sensitive areas.
- There is no protection of peat. Existing plantations on peat require water management.
- Local community land rights are respected based on FPIC principles.

Impact

- MSPO is mandatory for all Malaysian oil palm plantations, including smallholders, so its potential impact is very large.
- However, only 4% of planted area in Malaysia had been certified as of January 2017.

Trustworthiness

- There is a grievance system, but complaints against certificate holders have to be sent to a certification body which may not be independent.
- There is low transparency. Detailed certification criteria are not publicly available.

Sistem Verifikasi Legalitas Kayu (SVLK)

SVLK, also known as the Indonesian Timber Legality Assurance system, was adopted in 2009 with the goal of ensuring that timber products in Indonesia originate from legal sources. It covers wood and wood products, including paper.

Criteria

- As the SVLK is focused on timber legality, it does not include regulations on fire and peat. Protection of forests and local community rights is based on environmental impact assessments. Forest exploitation is limited to areas zoned as production forest.

Impact

- SVLK is mandatory in Indonesia and as of April 2017, all timber concessions and pulpwood plantations have been certified (EU FLEGT Facility, 2017).
- The EU has endorsed SVLK as a standard that meets the requirements of the EU Timber Regulation, which prohibits EU importers and domestic producers from placing illegally harvested timber and timber products on the EU market.

Trustworthiness

- SVLK regulation specifies the responsibilities of independent monitors and their access to information. To perform this task, Indonesian civil society organizations formed an independent forestry monitoring network, JPIK – Jaringan Pemantau Independen Kehutanan (“Jaringan Pemantau Independen Kehutanan (JPIK),” n.d.) whose members include more than 300 individuals and 60 organisations.

Improvement

- The SVLK regulation has been revised three times since 2009.
- There are no specific deadlines for reviewing the SVLK, but under the agreement with the EU, a Joint Implementation Committee was formed which oversees the agreement and will take remedial actions if systematic failures are identified.

Voluntary initiatives

Palm Oil Innovation Group (POIG)

The POIG is a multi-stakeholder platform that aims to go beyond the standard RSPO criteria. It has developed a set of verification indicators, the first version of which has been trialled by two companies. However, it lacks features commonly associated with certification systems, such as a grievance mechanism and accreditation.

Labelling schemes

Singapore Green Label Scheme (SGLS)

The SGLS was launched in 1992 as a way to endorse environmentally friendly products. It certifies a wide range of products including palm oil and paper products. The SGLS is administered by the Singapore Environment Council.

Criteria

- The palm oil criteria includes a requirement for RSPO certification.
- The paper criteria includes a requirement for FSC certification or “equivalent”. Companies need to go through audits and fulfil all FSC criteria except those pertaining to the Policy of Association.

Impact

- SGLS labels over 3000 products under a single label, making it easier for Singaporean consumers to recognise eco-friendly products.

Trustworthiness

- Transparency is low and criteria is not publicly available. There is also no grievance mechanism.
- A single company may have both labelled and unlabelled products. This allows for a two-tiered system where the same company may produce labelled products as well as non-labelled products that cause environmental and social damage.

Non-regulated standards

No Deforestation, No Peat, and No Exploitation (NDPE)

Criteria

- NDPE is a broad set of principles created as a result of NGOs' demands for an end to these three types of damaging practices.
- While there is no one standard set of criteria and indicators, there is a general consensus on the criteria required (see **Error! Reference source not found.** for our template of a basic NDPE policy relevant to haze and its processes).
- No Deforestation usually includes no clearance of High Conservation Value (HCV) and High Carbon Stock (HCS) forests. The main challenges are the definition of "forest" and the practical aspects of avoiding deforestation in landscapes with high forest cover or highly fragmented forests. A multi-stakeholder group has come together to develop a High Carbon Stock Approach (HCS Approach), which aims to consolidate an agreement on the actual implementation of No Deforestation principles. Some companies also include "no burning" principles under No Deforestation.
- No Peat generally refers to a ban on new development on peat of any depth. Some companies include best management practices for existing plantations on peat, as well as a commitment to explore options to restore peat.
- No Exploitation generally covers both a company's labour force and local communities. For local communities, Free, Prior and Informed Consent (FPIC) should be sought and respected. Some companies go into further detail on what constitute acceptable and unacceptable labour conditions.

Impact

- Chain Reaction Research reported in February 2017 that 365 companies globally have either No Deforestation or NDPE policies (Rijk, Steinweg, & Thoumi, 2017).
- These NDPE policies apply company-wide. For refiners and traders, NDPE policies are generally expected to cover not only the company's own plantations, but also third-party suppliers, giving them more reach than traditional certification standards. A 2016 study estimated that 60% of global palm oil production is covered by NDPE policies (Chain Reaction Research, 2016).
- Actual implementation will take time especially when third-party suppliers, middlemen and smallholders are involved. Challenges include traceability and illegal logging by third parties (Rainforest Alliance, 2015).

Trustworthiness

- Companies are expected to have their own grievance system and conduct transparent reporting. This presents a challenge for smaller companies that lack such capacity.
- Third-party oversight and audits are sometimes provided by NGOs or consultants that the company appoints, but at least one company has been accused of misleading these third-party organisations (Hance, 2016).

- NDPE policies are non-standardised in terms of their underlying mechanisms and requirements across the industry, and currently lack policing by any overarching regulatory authority.
- Hence, while such commitments are commendable and certainly a step in the right direction for the palm oil industry, they do not guarantee robust or concerted industry-wide efforts towards sustainability. This is evidenced by the latest 2017 assessment by the Sustainable Palm Oil Transparency Toolkit (SPOTT)¹ of the 50 largest palm oil producers and traders.
- Of those major companies, 8 are headquartered in Singapore. SPOTTs scores indicate that while 5 of the 8 companies are operating with ‘acceptable,’ scores², three, including Bumitama Agri Ltd, First Resources Ltd and Kencana Agri Ltd are below this bar.
- Furthermore, despite a relatively high SPOTT rating of 77.5% based on the strength of its commitments, Wilmar’s supply chains continue to be linked to deforestation and new peatland development. (foresthints.news, 2017) This is perhaps the clearest indicator that self-policing has not resulted in the improvements, and has instead resulted in different firms operating at different levels of sustainability and different definitions for sustainable palm oil.

Improvement

- Consensus building on the definition and methodology of “No Deforestation” has been an area of active work. The two initially divergent approaches: HCS+ and the HCS Approach, were merged on 8 November 2016. The HCS Approach steering group is currently working towards converging HCV, HCS, and FPIC (Greenpeace, 2016).

¹ SPOTT assesses palm oil producers and traders on the public disclosure of their operations and their commitments to environmental, social, and governance (ESG) best practice, to facilitate corporate engagement and increase industry transparency (Sustainable Palm Oil Transparency Toolkit (SPOTT), 2017a).

² A high score (i.e. >66%) indicates that the company is being transparent around their operations and their policies and commitments to environmental and social best practice, but this does not necessarily mean that the company is sustainable in terms of its impact on the ground (Sustainable Palm Oil Transparency Toolkit (SPOTT), 2017b).

Appendix B: Results of eatery and supplier survey 2017

Type of cooking oil	Number of eateries	Remarks
Palm oil or blend containing palm oil but not certified sustainable	43	
RSPO-certified palm oil	3	Two eateries switched to certified after our outreach
Does not use palm oil	29	Including eateries which do not use any cooking oil
Total	75	

Suppliers which can provide RSPO-certified cooking oil to eateries in Singapore (15 – 20kg tins):

- Ngo Chew Hong/ Mewah
- Sime Darby
- Hap Seng

RSPO-certified cooking oil brands available in Singapore supermarkets:

- Cabbage
- Chief
- Hand
- Golden
- King Rooster
- New Moon

Appendix C: Palm oil growers/ traders/ processors with presence in Singapore

Name	Presence in SG	Listed on SGX?
Wilmar International	HQ	Yes
Olam International Ltd	HQ	Yes
Golden Agri Resources Ltd	HQ	Yes
First Resources Ltd	HQ	Yes
Bumitama Agri Ltd	HQ	Yes
Indofood Agri Resources	HQ	Yes
Kencana Agri Ltd	HQ	Yes
Mewah International Inc	HQ	Yes
Global Palm Resources Holdings Ltd	HQ	Yes
Musim Mas Group PT	HQ	N.A.
Cargill Inc	Asia-Pacific hub	N.A.

This list may not be exhaustive. Data derived from SGX Listed Companies – Consumer Staples Sector and company websites.

Appendix D: NDPE Policy Template

Criteria

1. No Burning
 - a. No land clearance using fire
2. No Deforestation
 - a. No development of High Carbon Stock (HCS) forest as determined using the HCS Approach
 - b. No development of High Conservation Value (HCV) area
3. No Peat
 - a. No new development on peat of any extent, where peat is defined at least as “65% or more organic matter and depth of 50 cm or more”
 - b. Best management practices for existing plantations on peat
 - c. Existing plantings on peat assessed by experts to be unsuitable for replanting will be rehabilitated to original vegetation and conserved.
4. No Exploitation
 - a. Respect rights of indigenous and local communities to give or withhold their free, prior and informed consent (FPIC) to any new developments.
 - b. Complying with the fundamental conventions of the International Labour Organisation (ILO) and upholding the wider United Nations Guiding Principles on Business and Human Rights.

Scope

- Applied at parent company level, including all of its subsidiaries, for all upstream and downstream palm oil operations that it owns, manages, or invests in, regardless of stake.
- Applies to all third-party suppliers that it purchases from or has a trading relationship with.

Processes

- Have grievance mechanism
- Make publicly available list of suppliers and mills
- Active engagement of suppliers to verify compliance and take corrective action in case of violation

Appendix E: Recommendations

Recommendations for Singapore's commodity sector

1. Singapore-based palm oil companies should implement robust NDPE policies, make time-bound commitments to 100% RSPO certification for their own plantations and supply chains, and report annually on their progress.
2. Consumers, businesses, and other organisations in Singapore should avoid excessive consumption of fats and oil, especially by reducing their intake of fried food.
3. Consumers, businesses, and other organisations should reduce wastage of paper.
4. Eateries, manufacturers, and retailers that use palm oil should adopt a time-bound plan for 100% of the palm oil used as cooking oil across their operations to be RSPO-certified.
5. Singapore's biofuel producers should shift from using palm oil for biofuel to using agricultural waste and algae.

Recommendations for Singapore's finance sector

6. Singaporean financial institutions should use green finance and micro-credit to promote the adoption of sustainable palm oil and the development of forest- and peat-friendly agriculture.
7. Singaporean financial institutions, including local banks OCBC, DBS, and UOB and state-owned institutional investors GIC and Temasek, should all adopt ESG policies with publicly disclosed sector-specific policies covering agriculture and forestry that require customers who are palm oil growers, traders, and processors to:
 - a. Adhere to NDPE policies
 - b. Have RSPO membership and a time-bound plan for 100% RSPO certification for own plantations and supply chains
8. Singaporean financial institutions should publish a list of their clients in high-risk sectors, including agriculture and forestry, to promote transparency and accountability.
9. Singaporean financial institutions should become members of international sustainable finance governing bodies, covenants, and initiatives such as the Banking Environment Initiative (BEI), Equator Principles, and RSPO to understand industry issues and global best practices, build capacity, and participate in the decision-making process.
10. The Singapore Exchange should enact a timeframe for listed companies to improve their sustainability reporting standards, such as by obtaining third party assurance and engaging in stakeholder consultation.

Recommendations for Singapore's government

As ASEAN Chair in 2018, Singapore can initiate an ASEAN-wide approach towards tackling transboundary haze by:

11. Helping harmonise definitions and requirements for sustainable palm oil and paper and work together to enforce them throughout the supply chain and trading process within ASEAN.
12. Helping harmonise sustainable finance regulations across ASEAN.
13. Helping harmonise air quality standards and targets for ASEAN.

Singapore should also:

14. Tighten CITES protection to include items in transit and expanding the Endangered Species (Import & Export) Act to include illegally logged timber.
15. Increase its contribution to the ASEAN Haze Fund to be channelled to peat protection and restoration projects and the implementation of the ASEAN Haze-free Roadmap.
16. Empower non-state actors, such as academics and non-governmental organisations (NGOs), to collaborate in research to prevent haze, such as sustainable peat management and peat restoration.
17. Make a time-bound national commitment to import 100% sustainable palm oil
18. Enact a government procurement policy that includes RSPO-certified cooking oil.
19. Support the Singapore Alliance for Sustainable Palm Oil (SASPO) through financial or other means.
20. Promote sustainable business practices in Singapore by:
 - a. Promoting responsible finance and green micro-credit to support sustainable palm oil and forest- and peat-friendly agriculture (recommendation 6).
 - b. Encouraging all financial institutions and funds in Singapore to develop and disclose their Environmental, Social, and Governance (ESG) policies (recommendation 7).
 - c. Having the Singapore Exchange enact a timeframe for listed companies to improve their sustainability reporting standards, such as by obtaining third party assurance and engaging in stakeholder consultation (recommendation 10).

Recommendations for Singapore's civil society

21. NGOs should conduct and publish research on the sustainability standards currently available in the agribusiness sector; the financing policies of major financial institutions and funds in Singapore; the palm oil procurement policies of major eateries, manufacturers and retailers in Singapore; and the NDPE policies of palm oil companies that are listed and/or headquartered in Singapore, as well as their implementation.
22. NGOs should scale up awareness outreach among businesses and the general public about sustainable palm oil and forest- and peat-friendly products.
23. NGOs should help businesses and governments to build capacity in sustainable practices.
24. NGOs should encourage consumers to petition businesses to use sustainable palm oil.

25. NGOs should support on-the-ground projects in the region, including but not limited to forest- and peat-friendly agriculture development, community empowerment, mapping, and conservation.