

## POLICY BRIEF

# SOUTHEAST ASIA'S BURNING ISSUE: FROM THE 2015 HAZE CRISIS TO A MORE ROBUST SYSTEM

April 2016

### EXECUTIVE SUMMARY

The 2015 haze crisis will be remembered as one of the worst haze episodes in Southeast Asia. For months, peat and forest fires in Indonesia caused the region to suffer from severe haze pollution, with the Pollutant Standards Index in some Indonesian provinces hitting above 2,000. The prolonged haze exacted enormous social, economic, and environmental costs on the region; the gravity of the situation prompted swift and decisive actions from a range of stakeholders including the Indonesia and Singapore governments, plantation companies, retail companies, financial institutions, and the civil society.

Yet the root causes of the haze are complex and there is no single, quick solution to the problem. A tradition of fire-based agriculture and the politics of land management remain at the heart of the issue. Corruption, weak law enforcement, and the lack of transparency surrounding the supply chain in the plantation sector help explain the persistence of the fires and haze, despite the efforts of Southeast Asian governments and ASEAN in the last decade.

This policy brief suggests that in the immediate and short-term future, emphasis should be placed on mitigating the spread and impact of the fires in Indonesia. Stakeholders on the ground, from local governments to plantation companies to local communities should be equipped with the appropriate resources and know-how in fire-fighting. In addition, the Jokowi administration should push ahead with legislation to ban the burning of land, regardless of their size. Clear and strict law enforcement must be followed to punish those found guilty of instigating or causing peat or forest fires. This will hopefully act as a deterrent against anyone seeking to benefit from the fires at the expense of local communities and national interests.

As financiers of the agroforestry sector, banks and financial institutions in the region can play a strong role in "greening" the sector by demanding for clients to meet certain environment, social and governance (ESG) standards. As one of the worst affected ASEAN countries by transboundary haze pollution, Singapore can and should do more in this area given its reputation as the region's financial hub and in tandem with counterparts in Indonesia and Malaysia.

For the middle to longer term, our key recommendations go to Indonesia, the industry and the governments and peoples of ASEAN.

To address the challenges of unclear land tenure, lack of accurate maps and technical capabilities, and poor public consultation on land transactions, the Indonesian government needs to promote and institutionalize good forest and land governance. At the industry level, major agribusiness companies must remain committed to “zero burning” policy and establishing traceability across their entire supply chain. Companies should strive to comply with existing international and national certification standards as well as promote sustainability internally and externally with their stakeholders.

Public dialogue and policy advocacy on understanding and stopping the haze must be an ongoing effort. Continued pressure from the people to the governments and corporations to tackle the haze problem cannot be let up. Similarly, the advocacy work can benefit from a more systematic mapping and analysis of the political economy of the haze-producing fires on the ground.

## INTRODUCTION

For close to two decades, transboundary haze pollution from Indonesian forest fires has affected its ASEAN neighbouring countries, in particular Malaysia and Singapore. Far from being resolved, the year 2015 saw one of the worst haze episodes on record,<sup>1</sup> affecting at least six of the ten ASEAN countries, including southern Thailand and Vietnam. The

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<sup>1</sup> Chan, Francis (2015) Haze crisis set to be ‘one of the worst on record’, *The Straits Times*, 3 October 2015, [Online], Available: <http://www.straitstimes.com/asia/haze-crisis-set-to-be-one-of-the-worst-on-record> Retrieved: 14 January 2016

Indonesian Meteorology, Climatology and Geophysics Agency (BMKG) has labelled it “a crime against humanity”.<sup>2</sup> The social, economic, and environmental costs suffered by the region are enormous; yet the full impact of the haze can only be determined much later. Given the long existence of this problem, questions have been raised as to why existing measures have failed and what more can be done post-2015.

Last year, some 2.6 million hectares of forest and farmland in Indonesia – or four and half times the size of Bali – were burned from June to October.<sup>3</sup> At the height of the crisis, Palangkaraya, the capital of Central Kalimantan and one of the most affected regions, saw its Pollutant Standards Index (PSI) soar above 2,000.<sup>4</sup>

Six Indonesian provinces declared a state of emergency: Riau, Jambi, South Sumatra, West Kalimantan, Central Kalimantan and South Kalimantan. In Riau’s capital, Pekanbaru, thousands of residents fled to the nearby cities of Medan and Padang. Schools in parts of Indonesia, several states of Malaysia as well as Singapore were forced to close; many flights were either delayed or cancelled. With more than 43 million people exposed to

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<sup>2</sup> McKirdy, Euan (2015) Southeast Asia’s haze crisis: A ‘crime against humanity’, *Cable News Network*, 29 October 2015, [Online], Available: <http://edition.cnn.com/2015/10/29/asia/southeast-asia-haze-crisis/>. Retrieved: 14 January 2016

<sup>3</sup> The World Bank (2015) Reforming amid uncertainty, *Indonesia Economic Quarterly*, December 2015, [Online], Available: <http://pubdocs.worldbank.org/pubdocs/publicdoc/2015/12/844171450085661051/IEQ-DEC-2015-ENG.pdf> Retrieved: 14 January 2016

<sup>4</sup> Heng, Eve Sonary (2015) Haze forces 4,778 schools to close today; 2,696,110 students affected, *BorneoPost Online*, 22 October 2015, [Online], Available: <http://www.theborneopost.com/2015/10/22/haze-forces-4778-schools-to-close-today-2696110-students-affected/> Retrieved: 14 January 2016

smoke from the wildfires, deaths climbed to 19 across Central Kalimantan, South Kalimantan, Jambi, South Sumatra and Riau; more than half a million cases of acute respiratory tract infections were reported.<sup>5</sup>

***The Jokowi administration estimated that the recent haze crisis cost Indonesia as much as US\$33.5 billion.***

The environmental costs are substantial. A recent report found that since early September 2015 carbon emissions from Indonesia's fires had exceeded average US daily output on 26 out of 44 days.<sup>6</sup> The US is the second-largest source of greenhouse gases in the world, after China while Indonesia is commonly regarded as the fifth-biggest emitter. In addition the impact on Indonesia's fauna, which is among the world's most diverse and a broad spectrum of wildlife, has been severe. The lives and habitats of endangered species such as the orangutans, Sumatran tigers and Sumatran elephants have also been threatened.<sup>7</sup>

The economic costs are also striking. The first incidence of severe transboundary haze pollution in 1997 cost Southeast Asia an estimated US\$9 billion. But as of October

<sup>5</sup> (2015) Minister: Haze death toll climbing, *The Jakarta Globe*, 28 October 2015, [Online], Available:

<http://jakartaglobe.beritasatu.com/news/haze-death-toll-reaches-19/> Retrieved: 16 January 2016

<sup>6</sup> (2015) Carbon from Indonesia fires exceeds US emissions: Green groups, *Channel NewsAsia*, 21 October 2015, [Online], Available:

<http://www.channelnewsasia.com/news/asiapacific/carbon-from-indonesia/2207404.html> Retrieved: 16 January 2016

<sup>7</sup> Cochrane, Joe (2015) Indonesia's forest fires take toll on wildlife, big and small, *The New York Times*, 30 October 2015, [Online], Available:

[http://www.nytimes.com/2015/10/31/world/asia/indonesia-forest-fires-wildlife.html?\\_r=0](http://www.nytimes.com/2015/10/31/world/asia/indonesia-forest-fires-wildlife.html?_r=0).

Retrieved: 1 March 2016

2015, the Jokowi administration estimated that the recent haze crisis cost Indonesia as much as US\$33.5 billion (475 trillion rupiah).<sup>8</sup> Similarly, the World Bank placed the cost to Indonesia at about US\$16.1 billion, or 1.9 per cent of predicted Gross Domestic Product (GDP) that year.<sup>9</sup> The economic costs to Singapore is about US\$515.3 million (S\$700 million)<sup>10</sup> while Malaysia's costs remain ambiguous at this point. Given the duration and high PSI readings in 2015, some experts have predicted losses that are comparable to or higher than that incurred in 1997.<sup>11</sup>

The haze is a repeated point of political tension between Indonesia and its neighbours every year. In Singapore, one of the worst affected countries, the Government felt compelled to act in the face of widespread public dissatisfaction, and invoked the Transboundary Haze Pollution Act for the first time. Early on, the Singapore Government offered assistance to the Government of Indonesia to combat the raging forest fires. However, Indonesian authorities vacillated between accepting and declining Singapore's

<sup>8</sup> Chan, Francis (2015) \$47b? Indonesia counts costs of haze, *The Straits Times*, 11 October 2015, [Online], Available:

<http://www.straitstimes.com/asia/47b-indonesia-counts-costs-of-haze> Retrieved: 14 January 2016

<sup>9</sup> The World Bank (2015) Reforming amid uncertainty, *Indonesia Economic Quarterly*, December 2015, [Online], Available:

<http://pubdocs.worldbank.org/pubdocs/publicdoc/2015/12/844171450085661051/IEQ-DEC-2015-ENG.pdf> Retrieved: 14 January 2016

<sup>10</sup> Barratt, Olly (2016) Haze episode cost Singapore estimated S\$700m last year: Masagos, *Channel NewsAsia*, 15 March 2016, [Online], Available:

<http://www.channelnewsasia.com/news/singapore/haze-episode-cost/2605406.html> Retrieved: 17 March 2016

<sup>11</sup> Scawen, Stephanie (2015) The true cost of Malaysia haze, *Al Jazeera Media Network*, 23 October 2015, [Online], Available:

[http://www.aljazeera.com/indepth/features/2015/10/true-cost-malaysia-haze-](http://www.aljazeera.com/indepth/features/2015/10/true-cost-malaysia-haze-151023122841586.html)

[151023122841586.html](http://www.aljazeera.com/indepth/features/2015/10/true-cost-malaysia-haze-151023122841586.html) Retrieved: 1 February 2016

offer of assistance; and eventually opened its doors to international aid on 7 October 2015.

Indonesian President Joko Widodo has said that it would take three years to solve the haze problem – a goal that many industry players say is overly ambitious. At the December UN climate summit in Paris, he promised to enforce the moratorium on forests, and to review the issuance of peatland permits. Indonesia also pledged to cut its greenhouse gas emissions by 29 percent by 2030. During Jokowi's recent March meeting with Norway's climate and environment minister, Vidar Helgesen, he told the Norwegians that he would ban the clearing and draining of undisturbed peatland from 1 June 2016.

This policy brief aims to map some of the root causes of the haze, as well as the key actions taken by Indonesia, Singapore, Malaysia and the Association of Southeast Asian Nations (ASEAN). It will end with policy recommendations towards mitigating the haze-producing fires in Indonesia in the short and long term.

## **1. ASEAN'S RECURRING TRANSBOUNDARY HAZE POLLUTION**

### **1.1 The science of fires and haze**

Since the late 1990s, the fires and haze from Indonesia have grown to assume domestic, regional and global significance. While El Niño-induced droughts – observed in 1997, 2002, 2004, 2006 and 2009 – increase the frequency and severity of fires in Indonesia, the haze that blankets Southeast Asia annually is a man-made environmental disaster. To make way for cultivation, land is often cleared using fire, or the 'slash-and-burn' method, due to its lower cost and higher efficiency in contrast to mechanical

means. In addition, the residual ash is believed to release more nutrients into the soil, thereby reducing the need for added fertilisers in the early years of a plantation when nutrient requirements are high.

Previous studies have shown that the majority of fires occur on plantation lands and less than one quarter occurs in forest areas.<sup>12</sup> In the 2015 haze episode, nearly 40 per cent of fire alerts came from pulpwood plantations, palm oil concessions and logging concessions.<sup>13</sup>

Comprised of partially decayed organic matter, peatlands are usually water-logged and formed over thousands of years. But growing oil palm and pulpwood acacia trees require peatlands to be drained. Drained peat is highly flammable during the dry season and smoke is released when fires are used to clear peatlands.<sup>14</sup> Peat fires are also challenging to suppress as they occur under the ground and can easily go undetected.

Currently, 60 per cent of the world's tropical peatlands are located in Southeast Asia, covering approximately 24 million hectares. Of this, 70 per cent of the region's peatlands

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<sup>12</sup> Emmerson, Donald K. (2008) Hard choices: Security, democracy and regionalism in Southeast Asia, *Walter H. Shorenstein Asia-Pacific Research Center*, pp. 233

<sup>13</sup> Global Forest Watch Fires (1 Sept to 31 Dec) GFW fires analyses, [Online], Available: <http://fires.globalforestwatch.org/app/js/views/report/report.html#aoitype=ISLAND&dates=fYear-2015!fMonth-9!fDay-1!tYear-2015!tMonth-12!tDay-31&aois=Sumatra!Kalimantan!Lesser Sunda!Maluku!Papua!Sulawesi!Java> Retrieved: 13 January 2016

<sup>14</sup> Fogarty, David (2015) It's not just haze, forest clearing lead to subsidence, *The Straits Times*, 1 October 2015, [online] Available: <http://www.straitstimes.com/asia/se-asia/its-not-just-haze-forest-clearing-leads-to-subsidence> Retrieved: 31 March 2016

are found in Indonesia.<sup>15</sup> Much of the plantations and forests sit on great domes of carbon-rich peat. According to Global Forest Watch Fires, more than half of the 2015 fires occurred on peatland areas, concentrated mainly in South Sumatra, South and Central Kalimantan, and Papua.<sup>16</sup>

## 1.2 Causes of fires and Indonesia's domestic challenges

Although the scientific facts are well-established, the identity of the primary culprits remains in contention. Indonesian non-governmental organisations (NGOs) allege that the fires and haze originate mainly from lands owned by big companies engaged in logging, palm oil and other forestry and plantation industries. Recent research shows that most cases can be traced to peat fires from forest conversion or burning on peat soil.<sup>17</sup> Others – including some officials and corporate spokesmen – blame smaller-scale farmers. There have also been claims that smallholders are employed by large companies to slash-and-burn.

Conclusive proof one way or the other will be hard to establish. Yet this is only one of the many issues within the wider structural challenges facing ASEAN's largest economy, Indonesia.

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<sup>15</sup> ASEAN Haze Action Online (n.d.) Combating haze in ASEAN: Frequently asked questions, [Online], Available: <http://haze.asean.org/about-us/combating-haze-in-asean-frequently-asked-questions/> Retrieved: 13 January 2016

<sup>16</sup> Harris, N. et al. (2015) Indonesia's fire outbreaks producing more daily emissions than entire US economy, 16 October 2015, [Online], Available: <http://www.wri.org/blog/2015/10/indonesia%E2%80%99s-fire-outbreaks-producing-more-daily-emissions-entire-us-economy> Retrieved: 1 March 2016

<sup>17</sup> Varkkey, Helena (2016) The haze problem in Southeast Asia: Palm oil and patronage, *Routledge*, pp. 58

*Considering cases where the plots of small-scale farmers exist alongside or within large companies' concession areas, it is possible for fires to spread uncontrollably into concession plots, exceeding the two hectare limit.*

Indonesia law forbids the use of fire as a tool for large-scale land clearing and holds companies responsible for fires in their concessions. At the same time, Law 32/2009 Environmental Protection and Management permits small-scale farmers to slash-and-burn up to two hectares of forested land for cultivation.

Considering cases where the plots of small-scale farmers exist alongside or within large companies' concession areas, it is possible for fires to spread uncontrollably into concession plots, exceeding the two hectare limit. This situation is exacerbated when peatlands are involved and drained repeatedly. The ground becomes drier and increasingly flammable over the years.

The truth is, clearing land by fire provides economic benefits to some people. The Center for International Forestry Research has found out that compared with cutting down trees, the benefits derived from burning land is about \$856 per hectare with half of the profits going to the local elites.<sup>18</sup>

Indonesia's convoluted land ownership is a well-known fact. Land tenure in Indonesia is often unknown or disputed, making it difficult to establish where responsibility lies. Indonesia currently lacks a comprehensive and up-to-date reference map that accurately accounts for all land use in the vast

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<sup>18</sup> Purnomo, Herry & Shantiko, Bayuni (2015) 'The political economy of fire and haze: Root causes', presented at Global Landscapes Forum, Paris, 5-6 December.

archipelago, leading to widespread uncertainty over land ownership. As recent as late 2014, different ministries and government bodies were relying on their own maps for decision-making. Information on the allocation of land-use permits is seldom shared across agencies. Consequently, multiple permits could be legally issued for the same area, creating multiple legal concession holders and sparking land conflicts between companies and/ or local communities. The absence of accountability has in turn allowed elites at the local and central level to benefit from burning land.

A lack of coordination is also evident between the central government and district governments. The fall of authoritarian president Suharto in 1998 paved the way toward a democratic state and a decentralised power structure where district governments enjoy considerable autonomy in natural-resource management. Theoretically, a decentralised regime could facilitate environmental policies that are more suited to local community needs. However, a higher degree of local autonomy coupled with direct local elections have instead created a more revenue-oriented mind-set among many local governments. Local regulations may be interpreted by those who stand to profit from the deals, to justify the exploitation of natural resources and the environment.<sup>19</sup> To further maximise revenue, some permits are also allocated within the boundaries of existing concessions, adding to the confusion.

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<sup>19</sup> Widianarko, Budi (2009) 'Democratization, decentralization and environmental conservation in Indonesia', Budi Widianarko, Graduate Student of Environment and Urban Studies, Soegijapranata Catholic University (UNIKA), Indonesia, presented at the 9th Asia-Pacific NGO Environmental Conference (APNEC9) and the 30<sup>th</sup> Anniversary of Japan Environmental Conference (JEC), Kyoto, Japan, 20-21 November.

This ambiguity creates a convenient excuse for companies to blame one another or the local communities for environmental violations. Others may also capitalise on this confusion to perpetuate more illegal activities.

Indonesia's judicial system has often been criticised for its limited deterrence. At times, vested interests in the form of corruption and collusion may stand in the way of effective law enforcement.<sup>20</sup> A review of recorded cases shows that the penalties meted out to companies found guilty of starting fires or using fires illegally tended to be "wholly inadequate" or "ineffective".<sup>21</sup>

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## 2. RESPONSES TO THE HAZE

### 2.1 Indonesia's responses

With the haze first and foremost a domestic crisis, the Jokowi administration has demonstrated more political will than his predecessors to tackle and resolve the problem. At the peak of the haze crisis, President Jokowi visited the South Sumatra province to understand the forest fires first-hand. He laid down orders for the police chief to "get very tough" on errant corporations and charged the Forestry Minister to revoke

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<sup>20</sup> Tan, Alan Khee-Jin (2015) The 'haze' crisis in Southeast Asia: Assessing Singapore's Transboundary Haze Pollution Act 2014, NUS Law Working Paper 2015/002, February 2015.

<sup>21</sup> Ibid.



the license of those found guilty.<sup>22</sup> The President also shortened his US trip<sup>23</sup>, heading directly to Palangkaraya the capital of Central Kalimantan to personally lead the haze countermeasure efforts.<sup>24</sup>

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The Indonesian government formed a “haze emergency” task force involving the National Police and the Indonesian Army (TNI) as well as the National Disaster Mitigation Agency (BNPB). The Environment and Forestry Ministry served as the main coordinator. The task force sought to address the lack of financial support and coordination with the central government which had hampered attempts to prevent and extinguish fires at the provincial level; the usage of existing technology such as cloud seeding projects, were also given priority to enhance fire-fighting efforts and focus on regencies susceptible to forest fires.<sup>25</sup>

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<sup>22</sup> Nazeer, Zubaidah (2015) Indonesian President Joko Widodo goes to haze’s ground zero, *The Straits Times*, 7 September 2015, [Online], Available: <http://www.straitstimes.com/asia/se-asia/jokowi-goes-to-hazes-ground-zero> Retrieved: 17 January 2016

<sup>23</sup> (2015) Indonesian politicians criticise Widodo’s visit to US, *Channel NewsAsia*, 27 October 2015, [Online], Available: <http://www.channelnewsasia.com/news/asiapacific/indonesian-politicians/2220910.html> Retrieved: 17 January 2016

<sup>24</sup> (2015) Jokowi to stay in haze-affected regions, *AsiaOne*, 28 October 2015, [Online], Available: <http://news.asiaone.com/news/asia/jokowi-stay-haze-affected-regions> Retrieved: 17 January 2016

<sup>25</sup> Jong, Hans Nicholas (2015) Haze task force set up, *The Jakarta Post*, 6 September 2015, [Online], Available: <http://www.thejakartapost.com/news/2015/09/0>

In an unprecedented move in 2015, the Indonesian government revoked the licences of three companies for their role in the fires. The Environment Ministry further froze the operations of 14 companies which will likely face closure should they fail to meet the authorities’ demands for fire prevention. A total of 23 companies have been sanctioned since the Ministry started its investigations into 276 companies.<sup>26</sup>

Demonstrating his determination to avoid a repeat of the 2015 transboundary haze crisis, Jokowi has vowed to sack local military and police chiefs who are unable to control the spread of land and forest fires in their provinces. In January this year, he established the Peatland Restoration Agency (BRG) which is led by former environmental activist Nazir Foad. Reporting directly to the President, the BRG consists of a head, a secretary and four deputies. It will also be supported by a team of technical directors comprising governors, academics, professionals, research institutions and community leaders.<sup>27</sup>

The Indonesian government has declared peatland conservation as its key strategy to prevent forest fires in the future. It has committed not to issue new permits to convert peatland into commercial plantation. Existing peatland areas will have to follow strict procedures to ensure no peatland fire in

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[6/haze-task-force-set.html](http://www.straitstimes.com/asia/se-asia/6/haze-task-force-set.html) Retrieved: 17 January 2016

<sup>26</sup> (2015) Indonesia punishes 23 firms for forest fires that contributed to haze, *TODAYOnline*, 23 December 2015, [Online], Available: <http://www.todayonline.com/world/asia/indonesia-punishes-23-firms-forest-fires-contributed-haze?singlepage=true> Retrieved: 17 January 2016

<sup>27</sup> (2016) Indonesian President Joko Widodo sets up peatland restoration agency, *The Straits Times*, 13 January 2016, [Online], Available: <http://www.straitstimes.com/asia/se-asia/indonesian-president-joko-widodo-sets-up-peatland-restoration-agency> Retrieved: 1 February 2016

the future.<sup>28</sup> The government is currently running an analysis of 20 million hectares of peat to determine how much of it is degraded. The BRG has targeted to restore 2.5 million hectares of peatlands by 2020<sup>29</sup>.

To address land ownership and tenure issues, the Indonesian government is implementing its One Map initiative, first conceived under former president Susilo Bambang Yudhoyono. In late 2014 after consolidating spatial data from 13 government agencies, Indonesia's Geospatial Information Agency rolled out a standard land cover map. Drawing up the legal boundaries and concession maps, however, will be a time-consuming process and one that is unlikely to be concluded in the short run.

## 2.2 Actions by Singapore and Malaysia

Against these limitations, Singapore has stepped up efforts to combat haze from its own jurisdiction. The Transboundary Haze Pollution Act, which came into effect on 25 September 2014, attributes liability to entities that conduct or condone an act – occurring within or beyond Singapore – which causes or contributes to haze pollution in Singapore. This extraterritorial reach is “double-edged” as it is often perceived as infringing another state's national sovereignty and is only triggered after the haze pollution has occurred.<sup>30</sup> But others, including some

Indonesian NGOs, have lauded the Act as an alternative redress mechanism to Indonesia's laws and courts. This can complement Indonesian laws that forbid fires on Indonesian soil.<sup>31</sup>

Under the Act, Singapore has served Preventive Measures Notice on seven companies by the end of October 2015.<sup>32</sup> Among other things, the notices require the companies to devote manpower to extinguish or prevent the spread of any fire on land which they own or occupy and halt any burning activities on such land. Still, the Act should be seen as a baby step even as it was triggered during 2015's haze crisis. Strong cooperation with foreign officials, especially in Indonesia, is necessary for successful prosecution and enforcement. The Act is also far from being a silver bullet to the transboundary haze pollution.

Other civil society groups in Singapore have used their influence and resources to implement punitive measures, even as investigations by the Singapore authorities are still ongoing. The Singapore Environment Council (SEC), a Singapore-based NGO focusing on sustainable urbanization, has temporarily suspended Asia Pulp and Paper's (APP) exclusive distributor Universal Sovereign Trading's use of their green label. The Singapore Green Label endorses products

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<sup>28</sup> Panjaitan, Luhut (2016) 'Preventive actions to avoid major forest fires in Indonesia', Luhut Panjaitan, Coordinating Minister for Political, Legal and Security Affairs, presented at the Tropical Forest Alliance 2020 General Assembly, Jakarta, Indonesia, 11 March.

<sup>29</sup> Foad, Nazir (2016) 'Peat Restoration Agency Program', Nazir Foad, Head of Peatland Restoration Agency, presented at the ICOPE 2016, Bali, Indonesia, 18 March.

<sup>30</sup> Tan, Eugene KB (2015) Going beyond the law to fight transboundary haze, *TODAYOnline*, 22 September 2015, [Online], Available:

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<http://www.todayonline.com/commentary/going-beyond-law-fight-transboundary-haze?singlepage=true>

Retrieved: 14 January 2016

<sup>31</sup> Tay, Simon & Lau, Xin Yi (2015) Confusion clouds regional cooperation to fight haze, *TODAYOnline*, 4 September 2015, [Online], Available:

<http://www.todayonline.com/commentary/confusion-clouds-regional-cooperation-fight-haze?singlepage=true>

Retrieved: 14 January 2016

<sup>32</sup> Tan, Audrey (2015) Fight haze at regional, bilateral and national levels: Masagos, *The Straits Times*, 31 October 2015, [Online], Available:

<http://www.straitstimes.com/singapore/fight-haze-at-regional-bilateral-and-national-levels-masagos>

Retrieved: 2 February 2016



that are environmentally friendly. Following this, supermarket chains NTUC Fairprice, Sheng Siong and Prime Supermarket have all pulled APP products from their shelves.

Although Malaysia does not have legislation similar to Singapore's Transboundary Haze Pollution Act, the government has enforced the order to ban open burning in several states since March 2014. Applicable to states such as Selangor, Malacca, Negeri Sembilan, Kuala Lumpur and Putrajaya, the notice forbids all forms of open burning except for cremation, religious purposes, barbecue and flaring.<sup>33</sup> The Malaysian government is also considering enacting a law similar to that of Singapore's Transboundary Haze Pollution Act. This is a positive step forward in tandem with prosecution in Indonesia.

### 2.3 Fighting haze through ASEAN

As far back as 1990, ASEAN countries have come together and placed transboundary haze pollution on the ASEAN agenda. In late October 2015, ASEAN environment ministers expressed their commitments to develop an ASEAN Haze-Free Roadmap in order to achieve the vision of a haze-free ASEAN by 2020.<sup>34</sup> However, ASEAN's performance and achievements as a regional bloc to date have been mixed.

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<sup>33</sup> (2015) Many cases of open burning despite ban, *The Star Online*, 8 September 2015, [Online], Available:

<http://www.thestar.com.my/news/nation/2015/09/08/many-cases-of-open-burning-despite-ban-317-incidents-recorded-from-aug-31-to-sept-4/>

Retrieved: 1 February 2016

<sup>34</sup> Media release, 11<sup>th</sup> Meeting of the conference of the parties to ASEAN agreement on transboundary haze pollution, *Haze Action Online*, 29 October 2015 [online] Available:

<http://haze.asean.org/2015/11/media-release-11th-meeting-of-the-conference-of-the-parties-to-the-asean-agreement-on-transboundary-haze-pollution/> Retrieved: 31 March 2016

The ASEAN Agreement on Transboundary Haze Pollution ("Haze Agreement") was signed in June 2002. Written in response to the air pollution episode in 1997/98, this treaty outlines the obligations of ASEAN members, as well as the preventive measures and responses expected. It requires them to cooperate in haze prevention by controlling fires, instituting early warning systems and providing mutual assistance.

***Ratification of the ASEAN Agreement on Transboundary Haze Pollution will allow Indonesia to seek assistance from other ASEAN countries to help suppress the fires.***

This treaty is significant for at least two reasons. Firstly, it is legally binding, which is a contrast to ASEAN's historically soft approach of framing statements of intentions in declarations and plans of action. Moreover, the treaty offers the most detailed and comprehensive roadmap for cooperation and coordination thus far. Of particular note is its provision for setting up institutional structures, including the ASEAN Transboundary Haze Pollution Control Fund to implement the Agreement, and an ASEAN Coordinating Centre for Transboundary Haze Pollution Control that aims to undertake the many operational activities stemming from the Agreement.

For the treaty to be enforced, states must not only sign but ratify it. In international law, ratification is the essential act of acceptance by the respective Parliaments or assembly of representatives. Following 12 years of delay, Indonesia eventually ratified the treaty in September 2014, becoming the last ASEAN country to do so. Ratification of the Agreement will allow Indonesia to seek assistance from other ASEAN countries to

help suppress the fires.<sup>35</sup> However, one observer noted that regional engagement in ASEAN centres on the maintenance of national sovereignty. Even with a legally binding nature, the Agreement still gives priority to national interests, rather than the collective regional interest.<sup>36</sup>

### Case Study 1: Forest governance in Brazil

One of the most biodiverse places in the world, the Amazon Forest offers multiple ecosystem services, particularly water regulation. However, the Amazon suffers from several significant pressures, such as agricultural expansion, mining and the growth of infrastructure. The government of Brazil sought to improve forest management and decrease deforestation through a range of measures.

For instance, Brazil has granted lands to indigenous peoples, and implemented environmental regulations and licensing programs to control agricultural, forestry and infrastructure expansion.

From August 2011 to July 2012, Brazil saw a 27% decline in its rate of deforestation, contributing to a 76.27% overall reduction compared to its 2004 baseline.

*Source: World Resources Institute*

The joint haze monitoring system (HMS) adopted in 2013 further supports the tracking down of culprits behind the annual transboundary haze pollution. Developed by Singapore, the monitoring system relies on high-resolution satellite images coupled with land use and concession maps to identify those who burn land illegally.

The HMS was intended to allow the overlaying of thermal hotspots and satellite images on concession maps from each country to help identify suspects thought to be using slash-and-burn practices. However, two years on, the system still has yet to be introduced, as the Malaysian and Indonesian governments remain opposed to the release of concession maps to the public domain. Senior officials from Indonesia have emphasised that they are legally barred from sharing concession maps with the general public. Recent reports also suggest that they are disinclined to even share information on hotspot locations and concessions on a government-to-government basis. Some private sector companies have stepped forward to voluntarily release their own maps, but the legal situation remains unclear.

Historically, the public disclosure of data such as concession maps had often evoked mixed reactions. While Singapore has urged exigency in intergovernmental cooperation, the Indonesian and Malaysian authorities, for instance, have opposed the sharing of concession maps publicly and on a government-to-government basis. Some officials from Indonesia and Malaysia have respectively alluded to its Public Information Disclosure Act and its Official Secrets Act 1972 in defence. Part of this motivation may stem from an unwillingness to disclose who owns

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<sup>35</sup> Aritonang, Margareth S. (2014) RI ratifies haze treaty, *The Jakarta Post*, 17 September 2014, [online] Available: <http://www.thejakartapost.com/news/2014/09/17/ri-ratifies-haze-treaty.html> Retrieved: 31 March 2016

<sup>36</sup> Varkkey, Helena (2014) Regional cooperation, patronage and the ASEAN Agreement on transboundary haze pollution, *International Environmental Agreements: Politics, Law and Economics*, Vol. 14, No. 1, pp 65-81

the concessions and whether these concessions have been allocated fairly.<sup>37</sup>

However, according to some Indonesian law experts, existing regulations do not prohibit the sharing of concession maps and hot spot locations. On the contrary, the lack of transparency hinders the advancement of Indonesia's environmental and forestry management.

### 3. POST-2015 RECOMMENDATIONS

The Singapore Institute of International Affairs (SIIA) has been working on the haze issue since the 1997-98 fires. We have engaged key stakeholders in governments, environmental groups, and non-governmental organizations in the region as well as major corporations in the resource supply chain and their financiers. We have also organized public education efforts in Singapore to help consumers and citizens understand the haze and launched a web portal to help make information on participatory mapping and remote sensing data available to groups investigating the haze.

***While primary efforts must be made by the Indonesian government and companies in the involved industries, there are also responsibilities for neighbouring states, especially Singapore and Malaysia, and for financial and other institutions.***

Past recommendations have often centred on the ASEAN level and these must continue. But with the recurring fires in Indonesia and Jokowi's commitment to solve the haze problem in three years, Indonesia has shown that it can and wants to be leading on this

front. While primary efforts must be made by the Indonesian government and companies in the involved industries, there are also responsibilities for neighbouring states, especially Singapore and Malaysia, and for financial and other institutions. Many recommendations such as those involving better peatland management have also been proposed by different stakeholders over the many years of dialogues organised by the SIIA.

Based on these observations and recent developments, we have identified the following policy recommendations as top priority:

#### 3.1 Recommendations for immediate steps

##### 3.1.1 Increase Capacity to Prevent and Fight Fires

The fact that fires are persistent and recurring in some areas clearly signals that there has been no development of effective fire prevention strategies and that existing fire-fighting capacities are inadequate. Therefore, an immediate measure is to strengthen and enhance the capacity to prevent, locate and extinguish fires. To support the Indonesian provincial and local governments at the front line of this effort, there needs to be greater coordination and collaboration across related institutions and ministries in Indonesia. Especially important will be the National Disaster Mitigation Agency (BNPB) which has existing BNPB standard operating procedures in preventing forest fires, and the military who has been at the forefront of much of the fire-fighting last year. This should be further supported by the newly-established Peatland Restoration Agency. Even with more coordination and assistance provincial authorities and resources will no doubt become overstretched.

<sup>37</sup> Proceedings from SIIA Haze Tracker Working Group Meeting, 23 November 2015.

As such, plantation companies should take a greater responsibility to protect their concession areas from fire, especially those on peatlands. These companies should report on their preparedness and capacity and be pressed to increase their investment in fire-suppression capacity.

Additionally, larger plantation companies should also be given responsibility to assist the small and medium-sized growers and to protect areas adjacent to their concessions. The larger companies have a clear and direct interest to prevent the fires from spreading and damaging their concessions.

Drawing on their extensive field experiences, large companies are also better positioned and resourced to involve and train local communities in schemes for volunteer fire-fighting. Many more local communities must be incentivized, assisted and better-equipped to prevent and deal with the fires, to give them greater ability to stave off a crisis that affects them most directly.

### **3.1.2 Eliminate Slash-and-Burn Policies and Practices**

The Jokowi administration should close all remaining gaps in laws, regulations and local practice that might still create “grey areas” for some to use fire. Article 69 of the 2009 Environment Law still allows smallholders to clear two hectares of land or less by burning.<sup>38</sup> This provision has often been abused by local farmers, as well as major plantation firms, to engage in slash-and-burn practices and this

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<sup>38</sup>Parlina, Ina (2015) As haze clears, government finally acts, *The Jakarta Post*, 5 November 2015, [Online] Available: <http://www.thejakartapost.com/news/2015/11/05/as-haze-clears-govt-finally-acts.html#sthash.34wNYavU.dpuf> Retrieved: 1 March 2016

can set off fires in larger areas, accidentally or otherwise.

This gap should be closed with the issuance of a government regulation in lieu of law (Perppu) to repeal the relevant legislation and make the burning of land illegal for all. With this, local communities should start to change mind-sets that regard land burning as an acceptable practice.

To complement this ban, financial and other assistance should be provided to these small growers to enable them to shift to fire-free and sustainable practices. This can be provided by government agencies and larger plantation companies that buy the production of these small growers. Community to community projects to assist small growers and the surrounding communities can also be nurtured so that livelihoods are not negatively impacted.

***Larger plantation companies should assist the small and medium-sized growers and protect areas adjacent to their concessions. The larger companies have a clear and direct interest to prevent the fires from spreading and damaging their concessions.***

### **3.1.3 Strengthen Law Enforcement**

Last year the Indonesian government’s strong actions and sanctions against companies liable for causing peat or forest fires sends the right signal that it is taking the issue seriously. Building on this, laws must be effectively enforced going forward. Severe penalties and sanctions should be imposed on companies or individuals found guilty of instigating or causing forest fires.

Clear and strict law enforcement on the ground will deter government officials, large

companies, and individuals from capitalising on legal ambiguities to perpetuate their interests at the expense of local communities and national interests. Government officials embroiled in corrupt practices should be duly punished to deter future crimes.

These actions by the Indonesian authorities and courts can be complemented by the transboundary laws passed by Singapore in 2014. Malaysia should be encouraged to take similar strict enforcement on plantation companies both operating in Malaysia and in Indonesia.

### **3.1.4 Increase Sustainable Lending and Investments within the Financial Sector**

Banks and financial institutions in the region need to be more discerning in lending to and investing in companies which have a dubious record in meeting their environmental, social and governance (ESG) standards and/or where there are concerns that such companies have been causing the fires in 2015. The agriculture and forestry sector is often embroiled in controversies such as deforestation, land conflicts and haze pollution. Banks and financial institutions can and should play a stronger role in greening the sector or else risk exposing themselves to potential reputational damage and loan defaults.

Banks in Indonesia, Malaysia and Singapore need to start disclosing the use of ESG standards in their credit processes.<sup>39</sup> This

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<sup>39</sup> Stampe, Jeanne & McCarron, Benjamin (2015) Sustainable finance in Singapore, Indonesia and Malaysia: A review of financier's ESG practices, disclosure standards and regulations, *WWF Sustainable Finance Report 2015*, May 2015, [Online], Available: <http://www.wwf.sg/?246790/WWF-ASEAN-regional-banks-and-investors-behind-on->

need not mean that they cut off all clients in this sector completely. A more workable approach would be for banks and investors to engage clients who fail to meet their ESG criteria to improve on their environmental and social performance before disbursing loans. Financial institutions should also monitor their clients' ESG practices on an ongoing basis, akin to commercial risk.

In addition, banks and financial institutions can encourage clients from the agriculture and forestry sector to create value by improving their management practices. This includes favouring innovations that increase productivity without compromising on the environment and human rights. The sustainability bar can be further raised by giving priority financing to firms with outstanding sustainability records for instance. Indonesia's Financial Services Authority (OJK), the government agency that regulates and supervises the financial services sector, has published a roadmap for the development of the sustainable finance sector. Addressing both mid-term (2015-2019) and long-term (2015-2024), the roadmap aims to reduce bank financing for sectors – such as agriculture, energy and fishery – that potentially damage the environment. Where bank financing cannot be reduced, the client is expected to conduct business in a way that minimises the adverse impact on the environment.<sup>40</sup>

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[Environmental-Social-and-Governance-standards](#)

Retrieved: 1 March 2016

<sup>40</sup> Indonesia Investments (2015) Indonesia's Financial Services Authority (OJK) releases sustainable finance roadmap, 24 November 2015, [Online], Available: <http://www.indonesia-investments.com/news/todays-headlines/financial-services-authority-ojk-releases-sustainable-finance-roadmap/item6217>

Retrieved: 5 February 2016

In Singapore, the new responsible financing guidelines issued by the Association of Banks in Singapore (ABS) is a small first step to relook at the way local banks screen loans for sustainability. The guidelines require disclosure of senior management's commitment to responsible financing, the institution of a governing body as well as building staff capacity on this subject. ESG issues are also covered.

A next step would be for ABS to develop an industry-level roadmap that outlines expectations for member banks with respect to sustainable lending practices. This will encourage banks to adopt a long-term view towards profit-making and deter an attitude that strives for the minimum standards outlined in the guidelines. Internal adjustments or reorganisation should also be done with this long-term view in mind.

***Singapore can and should do more in the area of sustainable financing, as it is by a number of measures the leading financial hub in the region. However, there is a need to harmonize measures with others in ASEAN to prevent firms which cannot meet the ESG standards preferring to shift to other markets and lenders with lower or no standards.***

In yet another encouraging sign, the Singapore Exchange (SGX) will soon make it compulsory for listed companies to publish their sustainability reports on a “comply or explain” basis. Companies must publish a sustainability report within five months of their financial year-end, starting in 2018, for the financial year concluding on or after the 31<sup>st</sup> of December 2017. Otherwise, they will have to explain their failure to do so.<sup>41</sup> For

<sup>41</sup> Wong, Wei Han (2016) Sustainability reporting rules: SGX seeks views, *The Straits Times*, 6

those companies that do issue such reports, they may choose to follow global reporting standards for sustainability or adapt them to their company needs, again provided that explanations for such variations are given transparently.

In a similar vein, Bursa Malaysia Securities Bhd has put together a proposal to enhance sustainability practices and disclosures in the marketplace. This consists of a new sustainability reporting framework that involved amendments to the listing requirements as well as formulating a sustainability reporting guide. Besides helping listed issuers recognise sustainability-related matters that impact their operations, the guide aims to advise how sustainability can be embedded within their business as well as the disclosure obligations following the proposed changes to the listing requirements.<sup>42</sup> These are steps in the right direction. But more can be achieved if this is supported by similar efforts in Malaysia's banking sector.

The industry operates across borders in the region and indeed globally. As such, it is key that the regional financial institutions recognize and take concrete steps to address the issue. In this, Singapore can and should do more in this area, as it is by a number of measures the leading financial hub in the region. However, there is a need to harmonize measures with others in ASEAN to prevent firms which cannot meet the ESG standards preferring to shift to other markets

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January 2016, [Online], Available: <http://www.straitstimes.com/business/sustainability-reporting-rules-sgx-seeks-views> Retrieved: 4 February 2016

<sup>42</sup> (2015) Bursa seeks public feedback to enhance sustainability practices, *The Star Online*, 27 July 2015, [Online], Available: <http://www.thestar.com.my/business/business-news/2015/07/27/bursa-seeks-public-feedback-to-enhance-sustainability-practices/> Retrieved: 21 March 2016



and lenders with lower or no standards. As such, banks and financial regulators in ASEAN and especially Indonesia, Malaysia and Singapore should begin to discuss the steps that they can take collectively. To this end, the SIIA can play a role by hosting a workshop for all financiers in the region and facilitate further dialogues.

### **3.2 Medium to longer term recommendations**

In the medium and long-term, Indonesia has made a commendable effort to strengthen its peatland restoration to prevent future fires both in oil palm and pulp and paper plantations. Coupled with the urgency of the One Map initiative, it is imperative to begin these longer term efforts immediately. This policy brief focuses on a few pertinent medium to longer term recommendations.

***Indonesia needs to expedite the One Map initiative to provide more clarity on existing land use, thus minimising the incidence of land conflicts and other illegal activities.***

Firstly, it is imperative that the Indonesian government promote and institutionalize good forest and land governance. Indonesia's current forest and land governance system allocates various responsibilities to district, provincial and national governments. These include spatial planning, land concession licensing, budgeting for environmental management, and environment safeguards. However, compliance with existing regulations and procedures is often low, and law enforcement is weak. As discussed earlier in this policy brief, factors such as overlapping or unclear regulations, lack of accurate maps and technical capabilities, unclear land tenure, poor transparency and public participation, as well as corruption all contribute to the

problem. It is in the interests of all that Indonesia moves quickly to institutionalize a good forest and land governance system that addresses all of these challenges.

***Firms that have committed to “zero burning” policies across their entire supply chain should look to establish traceability back to mills and plantations, intermediaries and other smaller actors that are part of the supply chain.***

At COP21, President Jokowi said the country will use its One Map policy to govern land and forest areas. To this end, Indonesia needs to expedite the One Map initiative to provide more clarity on existing land use, thus minimising the incidence of land conflicts and other illegal activities. The issuance of Presidential Regulation 9/2016 on One Map Policy Development Acceleration in February 2016 is an indication of progress on this front.

At the industry level, major agribusiness companies must remain committed to “zero burning” policy across their entire supply chain, and demonstrate willingness to be more transparent and accountable. Firms that have committed to “zero burning” policies across their entire supply chain should look to establish traceability back to mills and plantations, as well as intermediaries and other smaller actors that are part of the supply chain. Companies need to get other smaller industry players on board to green its entire supply chain including production and transportation. This makes for better management practices that can bring about long term cost savings, increase productivity and help green the industry as a whole.

In addition, companies should share best practices and coordinate more closely to promote sustainability, including complying with existing international and national

certification standards such as the Roundtable on Sustainable Palm Oil (RSPO) or the Forest Stewardship Council (FSC). Where possible, leading industry players can come together to socialize or elevate these standards. A case in point is the Indonesia Palm Oil Pledge (IPOP). Signed at the United Nations Climate Summit in 2014, the pledge commits major industry players to standards and practices that are intended to go beyond the baseline Indonesian laws and even existing certification standards.

Therefore, a similar initiative for better corporate practices should be considered for the pulp and paper industry. International standards such as the FSC and the Programme for the Endorsement of Forest Certification (PEFC) as well as Singapore's own Green Label provide a good starting point. But major pulp and paper companies can go further by establishing consensus and best practices in the areas of fire management, community engagement and transparency.

### **Case Study 2: Empowering Singapore consumers to demand sustainable and haze-free products**

In July 2015, a haze campaign "We breathe what we buy" was jointly launched by the World Wide Fund for Nature (WWF) Singapore, the People's Movement to Stop Haze (PM.Haze) and the SIIA. The campaign aims to educate Singaporeans on sustainable palm oil production and to collect 50,000 pledges in the next few months. A reflection of domestic demand, these public pledges serve as a basis for future corporate engagements to encourage the adoption and use of Certified Sustainable Palm Oil (CSPO).

As with all industry-led efforts, these will have to be closely monitored and independently

verified. They should exceed and complement the aforementioned international benchmarks rather than conflict or undermine them. After all, sustainability extends beyond green procurement methods.

Public dialogue and long-term policy advocacy are necessary to keep the haze issue on the top of the agenda. One may be inclined to dismiss the transboundary haze pollution as a fleeting environmental problem once the sky clears, but doing so will only risk another haze episode in the future, and the potentially severe and widespread damage it might bring. NGOs in Indonesia should continue to serve as checks and balances to companies and governments. Further, NGOs in affected countries should continue to work together to understand the ground situation and deliver accurate messages to the public. Their campaign messages to the public to demand green products, timely actions from their governments, and companies meeting ESG standards should be an ongoing effort.

More research needs to be devoted to understanding and demystifying the political economy of the haze-producing fire on the ground. The network of actors who benefit from the fires and land transactions for plantations is highly complex and involves a wide range of entities from farmers, small-scale oil palm owners, and village heads to large-scale paper/oil palm companies to the central government. The opaqueness of the plantation industry and the entrenched patronage networks that support many companies continue to be a stumbling block. At the grassroots level, experts we spoke to say that more research is also needed to establish and disseminate successful methods of tropical peatland restoration. These methods can in turn, be replicated to cover larger tracts of tropical peatland in the long-term.

## CONCLUSION

Indeed, complex issues and interests lie behind Indonesia's fires and will not be resolved just by the word of one person, even the President. A full solution will demand time, resources, and at the very least – political will – from governments, companies, and financial institutions.

In all of these, Indonesia's leadership is indispensable both at home and abroad. After all, the fires and haze are first and foremost an economic loss to Indonesia and affects her citizens the most. Brazil's successful war against deforestation might provide some lessons for Indonesia when it comes to tackling the haze problem. Brazil put in place strong legislation to protect her trees and land, and these laws were rigorously enforced, including prosecuting illegal loggers and land grabbers. More importantly, the push to stop deforestation was advocated by broad segments of the society – from the people of Brazil to the upper echelon of the political environment.

As shown in this policy brief, the effects of the annual fires and haze from Indonesia are far-reaching and it is impossible to put a price on the long-term consequences of people's health, the loss of biodiversity, and climate change. A mind-set shift from short term gain to long-term sustainability of the agroforestry sector needs to happen now. At the same time, the Indonesian government, with the support of the private sector, will do well to ensure that opportunities for sustainable rural livelihoods and income exist for the country's rural poor. Indonesia has shown more political will and concrete actions to lead the way. More can be achieved when we stand ready to lend our full support.

## AUTHORSHIP AND ACKNOWLEDGEMENTS

This policy brief is authored by Simon Tay, SIIA Chairman, Lee Chen Chen, Director of Policy Programs and Lau Xin Yi, Policy Research Analyst as part of the Singapore Institute of International Affairs (SIIA)'s Sustainability Program.

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All views expressed in this policy brief are those of the authors, unless otherwise cited.

### **About this policy brief**

This is a Track II policy brief authored by the Singapore Institute of International Affairs (SIIA) which seeks to present detailed policy prescriptions for experts and policy makers who look closely at ASEAN issues. The SIIA is a founding member of the ASEAN Institute of Strategic and International Studies (ASEAN-ISIS) network of think tanks that are involved in Track II diplomacy in the region.

### **About the Singapore Institute of International Affairs (SIIA)**

The SIIA is an independent think tank dedicated to the research analysis and discussion of regional and international issues, and plays a key role in Track II diplomacy, supplementing official dialogue between governments. Founded in 1961 and registered as a membership-based society, the SIIA is Singapore's oldest think tank that aims to help Singapore become a more cosmopolitan and global society through public education and outreach on international affairs.

Since 2013, the SIIA has ranked highly as one of the top think tanks in Southeast Asia and the Pacific, in the Global Go To Think Tank Index done by the University of Pennsylvania. In the index, SIIA has consistently ranked among the top 100 think tanks in the world.

The SIIA has organised key dialogues on transboundary haze pollution since 1997 – when large-scale fires in Kalimantan and Sumatra led to one of the worst haze episodes in Southeast Asia. Every year, the SIIA hosts the Singapore Dialogue on Sustainable World Resources (SDSWR), a multi-stakeholder forum that aims to promote exchanges of best practices to deal with haze pollution and other issues of sustainability in the plantation sector in ASEAN.

The SIIA's Sustainability Program seeks to address the sustainability challenges facing the ASEAN region, focusing on the haze problem, the resource sector, sustainable finance and climate change. In doing so, the SIIA collaborates with various stakeholders in conducting policy research and analysis as well as organizing events that focus on the environmental challenges facing ASEAN and the solutions needed to tackle these problems. The SIIA also hosts HazeTracker.org, Singapore's online repository of maps and articles on issues related to the smoke haze.

#### ***For further information, contact the SIIA at:***

60A Orchard Road #04-03 Tower 1,  
The Atrium@Orchard, International Involvement Hub  
Singapore 238890  
Tel: (65) 6734 9600 | Fax: (65) 6733 6217 | [www.siaonline.org](http://www.siaonline.org)

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