

SPECIAL ENVIRONMENT REPORT

CLEAN CITY AIR & THE HAZE: A THREE-FOLD APPROACH TOWARDS BREATHING EASY

February 2013

Introduction: Trouble in the Air

Clean city air is increasingly becoming a scarce commodity in Asia. All across the continent, cities are facing declining air quality. Even though Singapore has relatively better air than elsewhere in Asia, it is not something that we can afford to be complacent about. Needless to say, Singapore faces its own challenges. There is a tendency to tackle clean air in isolation from other issues like climate change, and also for normal Singaporeans to leave clean air to the government alone to maintain. There is also a lack of cross-sector collaboration towards keeping the air clean.

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This Special Report attempts to address such concerns. It consolidates the SIIA's work on clean city air and the haze, including recapping events and reviewing media highlights and commentaries which examine the challenges of maintaining clean air and provide suggestions on tackling these

difficulties beyond government policy. This Special Report frames our work and positions in a three-fold approach: (1) an integrated approach towards clean air and other environmental issues; (2) the involvement of all stakeholders beyond the government; (3) the implementation of collaborative frameworks for all stakeholders.

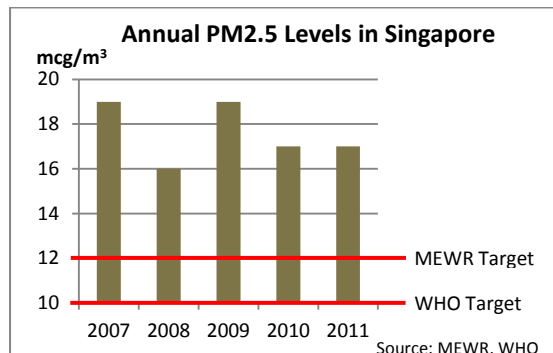
Air Pollutants in Asia

It is important to recognise the harmful effects of pollutants such as PM2.5 – fine particles 2.5 micrometres in diameter or less. PM2.5 are considered more dangerous than their larger counterparts, PM10, as they are able to penetrate the lungs and other organs more deeply due to their small size. Studies have shown that particulates are not only linked to respiratory and heart disease, but even to cognitive decline.

Annual PM2.5 levels in Singapore were at 17 mcg per cubic metre in 2011, unchanged from 2010.¹ While this level is lower than those of other cities in Asia, it is still above the 10 micrograms per cubic metre target set by the World Health Organisation's Air Quality Guidelines.² The ongoing haze issue also continues to make its presence felt. These issues underscore the need for Singapore never to take its air for granted.

What could happen if Singapore loses its commitment towards clean city air? The deteriorating state of the air in other Asian cities serves as cautionary examples. A recent report indicated that PM2.5 in the air may

have caused the deaths of up to three times as many people as killed by traffic accidents in Beijing and Shanghai.³ A separate study showed that the rise in air pollution in Indian cities between 2002 and 2010 outpaced even those in China.⁴ Worse, in January 2013 Beijing's air quality readings alarmingly skyrocketed to off-the-chart levels.⁵



It is imperative for Singapore to avoid such catastrophic situations as clean air makes up a major part of a city's liveability. This is what makes Singapore economically vibrant, helping to attract and retain the most capable people from Singapore and abroad. The Special Report is thus a culmination of our work towards this end, and the first step is to address clean city air in a holistic way which takes into consideration other related environmental issues.

1. An Integrated Approach

This is not a matter of simply zeroing in on just one issue at a time, be it clean air, the haze or climate change, but instead having an integrated approach to environmental problems. Simply focusing on one issue in isolation from another can in fact be detrimental to overall long-term goals towards environmental sustainability.

Addressing Clean City Air

Addressing the need for clean city air along with the issue of climate change mitigation requires such an integrated and balanced approach. Even though the focus on climate change is a good thing, excessive focus on the issue while ignoring the health threats of other air pollutants like particulate matter

does little to help the cause of overall environmental protection.

Climate Change: Another Key Challenge

The SIIA, recognising the significance of climate change and its links to our main focuses of clean city air and haze, has been monitoring developments in climate change mitigation, and raising awareness of climate change issues over the past decade. In 2008, SIIA Chairman Simon Tay co-edited with the Civic Exchange a book titled **"Climate Change Negotiations: Can Asia Change the Game?"** It summarises Asia's concerns, aspirations and responsibilities for a future global climate change agreement, with two chapters written by Prof. Tay and SIIA researcher Phir Paungmalit. An event titled **"Climate Change and Asia: Risks, Opportunities and Policies"** was organised by the SIIA and the Civic Exchange in May 2008 in conjunction with the book project. In 2009, the SIIA and Hemispheres Foundation co-hosted the **"Actions for Earth Carbon Footprint Challenges"** event. In 2010 Prof. Tay and Mr. Paungmalit wrote a paper titled **"Climate Change and Security In the Asia-Pacific"** for the 2nd Tokyo Seminar on Common Security Challenges, and both authors joined hands again in 2012 to write a chapter on nuclear energy and climate change in the book **"Nuclear Power and Energy Security in Asia"**. The SIIA also organised a series of climate change-related events in 2012 targeting youths at the Junior College and Polytechnic levels. The first was a **Youth Climate Change Seminar**, which was held in May, followed by a **Youth Climate Change Simulation** in August, to raise awareness among students the importance and challenges of climate change mitigation efforts. The SIIA, in collaboration with the National Climate Change Secretariat (NCCS), also hosted a **Community Dialogue and Seminar** in June 2012, for stakeholders to discuss reactions to the National Climate Change Strategy 2012, which is a blueprint by the NCCS of Singapore's future efforts to reduce greenhouse gas emissions.

This was illustrated during the **Clean Air Forum** held on 3 July 2012. The Forum, co-hosted by the SIA and the National Environment Agency (NEA) and held in conjunction with the CleanEnviro Summit Singapore, brought together international public and private sector representatives to discuss innovative solutions to tackle air pollution in Singapore and the region.

Panellist and SIA Associate Fellow Dr. Kua Harn Wei gave suggestions for an integrated approach to address the problem of previous conventional single-issue approaches which resulted in complex and unintended consequences. For example, Mexico discovered that under some conditions, its use of catalytic convertors to reduce carbon dioxide levels has resulted in the increase of nitrous oxide, a greenhouse gas three times more powerful than carbon dioxide.

Instead, Dr. Kua recommended addressing climate change and air pollution at the same time, focusing on increasing trip and fuel efficiency by assessing a product's life cycle to reduce energy use of pollutant production from all stages, and also use new tools of behavioural sciences to keep consumption levels sustainable.

It must be duly noted that the government of Singapore has been working to curb air pollution. The NEA has increased the reporting frequency of the Pollutant Standards Index (PSI), which measures levels for major air pollutants, from once a day to three times a day, and this now includes PM2.5. Data on PM2.5 levels were previously only released on an annual basis and not included in daily air quality readings.

At the same time, the Ministry of the Environment and Water Resources last year announced new measures to reduce air pollution, including requiring all new diesel vehicles to adopt Euro V emission standards (up from Euro IV) by January 2014, and all new petrol vehicles to adhere to Euro IV standards (up from Euro II) by April 2014. The higher standards are significantly more stringent than their predecessors.

Nonetheless, SIA Executive Director Mr. Nicholas Fang has cautioned that the increased use of diesel cars addresses mainly carbon emissions, and not necessarily other pollutants like particulate matter, nitrogen oxides and sulphur oxides. "We need to pay heed to these pollutants as we work towards becoming a green country," Mr. Fang said in an interview with the Straits Times on 21 November 2012.

Echoing this sentiment was Mr. Koh Ching Hong, **CCAC** founding member and Managing Director of Borneo Motors, which has been at the forefront of the promotion of hybrid vehicles. "What we're trying to say is that we are very supportive of clean air and (the Carbon Emissions-based Vehicle Scheme), which is about carbon measurement. CO₂ is about the climate but the other (pollutants) are about our health. We're also saying, why don't we go one step further and measure other particulates too?" Mr. Koh said in a TODAY article on 16 February, 2013.

Mr. Koh further highlighted that petrol cars under European emission standards usually perform better than diesels in terms of nitrogen oxides and particulates, even if the opposite is true for CO₂ and fuel efficiency.⁶

This brings home the need to have an integrated, balanced approach when dealing with climate change, clean air and other environmental problems.

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2. Stakeholder Involvement

Simply relying on the government alone to curb air pollution is insufficient. Stakeholders such as citizens, the private sector and civil society also need to take on the responsibility of maintaining Singapore's clean air.

Citizen Involvement

Citizens may not fully understand the environmental challenges in Singapore, given the relatively good state of the environment compared to other cities in Asia. This highlights the need to raise further awareness of clean air among citizens, as citizen action as a whole can have considerable impact on the environment.

The authorities' measures can be further boosted if the general public also does its part in promoting clean city air. It is not feasible to rely on the government to take care of all environmental troubles that arise in Singapore, and the actions of each person count. If greater individual action becomes the norm in Singapore, it can be a catalyst for change in the wider region.

How can people be empowered to act? SIIA Chairman Prof. Simon Tay attempted to address this question during his talk at the **TEDxWWF Conference**, held in June, which showcased various forward-thinking speakers on environmental issues. Prof. Tay highlighted that people need to begin with analysis, but that is not enough. Perceptions need to change as well, and this is where raising awareness comes in. From this, people can move to action, to become empowered and to empower others.

This concept was reinforced during the **SIIA-IndoChina Cocktail Fundraiser** held in September. The event focused on the SIIA's Environment and Resources Programme, and featured speakers discussing critical and timely climate change and clean air issues.

The keynote speaker, Minister for the Environment and Water Resources, Dr. Vivian Balakrishnan, emphasised the need for people to take action and ownership of the issues. The Minister also underscored the importance of getting ordinary people and businesses involved in protecting air quality.⁷ Celebrity and Green Kampong founder Ms. Nadya Hutagalung highlighted that companies are now taking note that they need to adjust to consumers who are looking for greener and ethical brands. IndoChina Group CEO, Mr.

Michael Ma, also remarked that consumers today are more familiar and attuned to businesses.

Citizen activism is also playing a large role in pressuring governments to act against air pollution elsewhere in Asia. The municipal government in Beijing had previously not released PM2.5 levels publicly, and it was the US embassy which actually began monitoring and publishing the levels to the public in 2012, showing that the air quality was very unhealthy. This caused anger among ordinary people in Beijing, who began to call on the municipal government to release PM2.5 levels. Despite the municipal government's protests that the US embassy was interfering, it finally caved in to public pressure and began releasing hourly readings of PM2.5 levels.

What can citizens in Singapore do? For one, people can start to use more clean technology vehicles, such as electric and hybrid cars, and well-tuned petrol vehicles over diesels that emit more smoke.

Analysis, Awareness, Action: How can people be empowered to act? People need to begin with analysis, but that is not enough. Perceptions need to change as well, and this is where raising awareness comes in. From this, people can move to action, to be empowered and to empower others.

The NEA also began clamping down on vehicles that emit smoke, including mounting video cameras in its vans to capture images of offending vehicles. Citizens can supplement these efforts – pedestrians on the street can photograph and report instances where they see polluting vehicles. They can also share these photographs using social media, and reach out to a larger number of viewers. Such actions will not only highlight that vehicular emissions are indeed a problem, but also deter vehicle owners from flouting emission rules.

Private Sector Role

Moreover, what is needed is not just citizen action, but also the active participation of the private sector. As mentioned, consumers are becoming more sensitive towards the environmental credentials of companies. If corporations are able to respond accordingly and provide greener options for consumers, it will empower consumers to make informed choices that benefit the air and environment.

An example can be seen in the hybrid and electric car industry. Awareness of such green vehicles remains low in Singapore. This is where private enterprises can step in, as one company demonstrated by providing rental services for electric vehicles. Smove, the electric vehicle rental company which is based in Buona Vista,⁸ could be one of the catalysts to enhance electric vehicle initiatives by the government, in addition to letting the public try out these green vehicles and raising awareness of their utility.

Larger corporations also have a role to play. In line with our goal of reaching out to, and forming collaborative relationships with, stakeholders of clean air, the SIIA has formed the **CCAC**. Officially launched during the Clean Air Forum, this group consists of like-minded corporate partners dedicated to raising awareness of and providing solutions to air quality issues.

Apart from Borneo Motors, the Coalition comprises well-known enterprises, including Senoko Energy, which has fashioned itself to be a key solution to air pollution through its initiatives to reduce emissions from its operations; and KPMG, which is the leading consultancy in corporate social responsibility and has a large sustainability practice.

In addition, the Coalition also consists of companies which have a major stake in clean air, such as the IndoChina Group and Sentosa Leisure Group. These businesses are leaders not only in their respective fields, but also in the promotion of environmental sustainability. These champions could become role models for other large companies for greener business practices.

Indeed, the government can also encourage the private sector to provide greater choices for consumers. For instance, thanks to energy market liberalisation policies, current regulations allow larger electricity users which consume over 10,000 kilowatt-hours annually, to choose their electricity providers. However, smaller consumers, mainly households and small companies, are still unable to do so. The Energy Market Authority is currently reviewing plans to allow all consumers to choose their energy providers. This will empower consumers to switch to providers which are considered to be green.⁹

Ultimately, what is needed is for greater stakeholder ownership of clean air issues, such as technology in transport and energy, as well as in recycling and incineration. Equally important is the need to have a more innovative scope of what it means to be green. Frameworks for cross-sectoral collaboration are needed. In this regard, efforts to fight the haze provide an example of how such a framework can be developed.

Consumers are becoming more sensitive towards the environmental credentials of companies.

3. Collaborative Frameworks

While stakeholder involvement is necessary for solutions to clean air, in the absence of proper frameworks the actions of each stakeholder would lack coordination and may even be at cross-purposes, as each stakeholder pursues its own agenda and aims. Appropriate frameworks must be in place to help coordinate the actions of stakeholders so that their actions will be better aligned with the overarching goals of clean air. This is evident in the case of curbing the haze.

The Haze: A Background

In the debates regarding clean city air in Singapore, the haze stands out as one issue that can clearly be seen even by those who

maintain that Singapore's air is generally clean.

The number of haze-causing hotspots in Sumatra spiked in the middle of 2012, after falling steadily in previous years, causing a prolonged hazy spell, the worst since 2006. While nowhere near as serious as in 1997-98, the haze was significant enough for Dr. Balakrishnan to call it "considerable backsliding".¹⁰

Solutions to the haze do not simply lie in the air or in paper promises. The real solutions are to be found on the ground itself, and the aforementioned lessons bear reiteration. Firstly, involvement of stakeholders beyond Indonesia's national politics is needed.

Provincial authorities, in fact, have greater impact on the ground and in their respective provinces where the fires burn, given the decentralisation of administrative power in Indonesia and distances from the centre.

Since 2007, Singapore has worked with local authorities in Jambi province, with Malaysia making similar efforts in Riau, and both governments are expected to renew their respective projects going forward. If these efforts are indeed helpful, governments should upscale and multiply their projects.

In May 2012, the SIIA supported Brunei's Ministry of Development in hosting the **Ministerial Steering Committee Forum on Transboundary Haze Pollution in Southeast Asia (MSC Forum)** held in Brunei. Environment Ministers from the region, including Singapore's Minister for the Environment and Water Resources, were present at the Forum, which involved NGO and private sector representatives sharing their expertise and experience in conservation and dealing with the haze.

Indications were shared to show that Singaporean and Malaysian collaborative projects have been useful, with fewer fires in the areas where cooperation was enhanced. However, government action alone, even at the regional level, is insufficient for tackling transboundary problems like the haze. The

expertise of non-governmental organisations (NGOs) should also be tapped.

One prospect is the Heart of Borneo, an initiative by the World Wide Fund for Nature to conserve areas across parts of Brunei, East Malaysia and Kalimantan and prevent fires from spreading across the northern belt of Borneo.

The private sector can also play a positive role in moving ahead. Funding is needed for conservation and can be mobilised through carbon offsets and REDD+ (reducing emissions from deforestation and forest degradation) schemes. For instance, the Heart of Borneo project is funded in part by Standard Chartered Bank, while the Harapan project in Sumatra, managed by Burung Indonesia along with other NGOs, is funded partially by Singapore Airlines.

Secondly, beyond stakeholder involvement, the haze can only be addressed effectively if it is tackled as part of a broader agenda for sustainability, alongside other issues such as conservation, livelihoods, and climate change.

Solutions to the haze do not lie in the air or in paper promises. The real solutions are to be found on the ground itself, and require the involvement of stakeholders beyond Indonesia's national politics.

Conservation projects go a long way in protecting forests from fire-starters. Additionally, haze prevention efforts must work together with local communities and corporations on the ground, as funding for solutions and finding alternative livelihoods for local communities must be part of the approach. The MSC Forum also featured a presentation suggesting that current estimates of the impacts of the fires and haze may be under-evaluated, in the terms of the quantities of carbon dioxide and their atmospheric impacts, highlighting the need to link the haze with larger climate change issues.

But for stakeholders to work effectively, a collaborative framework with national and local governments must be in place, or the divergent interests of each stakeholder will impede progress towards mitigating the haze.

Frameworks for Haze Mitigation

Since these efforts entail many moving parts, cooperative frameworks are ultimately needed to unify these parts into a coherent whole. Frameworks promoting public-private partnerships, as well as linkages with NGOs and local communities, should be fostered. Again, each stakeholder has a role in promoting such frameworks.

NGOs could help set the agenda by encouraging dialogue between different stakeholders. The MSC Forum, in which the SIIA played a role as strategic partner, is an example of a dialogue in which the public and private sectors as well as NGOs share their experiences and best practices. The SIIA has been organising haze dialogues for years, creating platforms for the information sharing of experiences and best practices, as well as for raising greater awareness within the general public.

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Governments also need to provide sufficient legal frameworks to ensure regulatory certainty. Incentives to investors should also be considered. Otherwise investors will remain uncertain about financial returns, given the lack of information, high initial funding requirements and delayed returns such projects typically entail, and inertia will continue. This would hobble the efforts of NGOs, which would see funding for research, conservation projects and events dry up.

Case Study: Rimba Raya Reserve

The 2012 UN Climate Change Conference held in Doha, Qatar, concluded unceremoniously without breaking new ground. However, a seemingly small yet significant piece of news emerged – Indonesia announced that it has officially approved the Rimba Raya Biodiversity Reserve. Located near the south coast of Borneo in Kalimantan province, the project covers an area the size of Singapore, protecting the rainforests and peatland within in from being cut down or burnt by loggers, oil palm and other commercial interests. It will be financed by the sale of carbon credits, or carbon emissions averted with the conservation of the area. The project is an example of how divergent aims among investors, organisations and government agencies can derail a project, as well as the importance of a collaborative framework. It appeared doomed to fail in earlier years – In 2010, the project appeared ready for approval, but stalled and came close to collapse due to bureaucratic roadblocks and conflicting commercial interests. The forestry ministry suddenly decided to reduce the project area by half, making it unviable, and ceded a large part of it to an oil palm corporation which claimed overlapping concessions. However, powerful backers from both public and private sectors eventually restored the forestry ministry's support.¹¹

Such frameworks should also ensure that corporations operating in fire-prone regions observe laws against the use of fire, and errant companies must be subject to legal sanction in Indonesia. At the same time, governments should give due recognition to companies that refrain from using fire and conduct their business in a sustainable manner.

Consumers could also put greater economic pressure on the products of errant companies. Pressure on the palm oil industry has been growing, and some companies have responded responsibly by seeking certification that their practices are legal and sustainable.

Customers, investors and financiers should increasingly require such a certification.

Moreover, consumers, organisations and palm oil growers could form groups to develop platforms promoting such actions. An example of such a grouping is the Roundtable on Sustainable Palm Oil, an international membership-based organisation promoting sustainable palm oil practices through a certification system.

Conclusion

These developments show that government policy, while necessary, is by itself insufficient in tackling the myriad of environmental problems troubling Asia and the world. First, an integrated approach towards tackling environmental issues, like clean air and climate change, should be undertaken, rather

than treating each problem in isolation of other issues. Moreover, stakeholder involvement is critical – be it citizen ownership and organisation, NGO participation and management, or private sector financing. Finally, cross-sector collaborative frameworks, rather than each stakeholder simply acting on its own, are needed to comprehensively address the pressing clean air and other environmental problems.

The SIIA, in this regard, continues to promote a balanced approach and raise greater awareness among stakeholders towards clean air issues, by writing commentaries and reports, as well as hosting dialogues between different stakeholders. In doing so, the SIIA will continue to work to be part of the framework that will augment collaboration and align the actions of stakeholders.

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