Responses to Air Pollution Based on Historical and Current Policies in the EU and ASEAN

Michael Goodsite, Catherine Wong Mei Ling, Ole Hertel, Lars Moseholm

This review paper focuses on an important new question: how can climate change affect maritime and other cities of Southeast Asia, and what challenges and possible responses can be identified based on historical and current regional policies and action, especially with regard to air pollution? This review was undertaken as part of the ISDP and ISEAS sponsored initiative: Regional Cooperation in Environmental Protection: Lessons from Two Regions (EU and ASEAN). We examined the cases of the EU and ASEAN policies for the protection of air quality from a scientific practitioner's point of view. We seek to ascertain if ASEAN can respond to regional human-induced environmental problems given existing problems of national sovereignty and the interest-based character of ASEAN-type associations, since ASEAN's goal, in contrast to that of the EU, has been regional cooperation rather than regional integration. Both regions are responding differently to climate change and the global economic and environmental realities resulting from, or arising in reaction to, their policies (or lack thereof). While the EU and ASEAN can and should learn from one another and their relations have been the subject of studies (see for example), there are still challenges to be addressed to effectively drive improvement of critical regional (air) pollution issues that may ultimately impact health and productivity. Each regional organization has in its own manner made exemplary efforts towards resolving environmental degradation within its own region and taken efforts to make a positive international impact, but there is still the need for international treaties and more local efforts to empower the regional visions. Our aim is to highlight the status of the respective policy frameworks and exemplify areas in which we can learn from one another in the field of air pollution, given its global relevance for climate change. We conclude by suggesting a strategic summary framework for future action. This paper is not meant to be a history of either EU or ASEAN policy; for this, the reader is referred instead to appropriate literature, most notably the EU Environmental Policy Handbook, especially the air quality chapter (3) with excellent background information on European Atmospheric Environment Policy.

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T he Association of Southeast Asian Nations (ASEAN) has often been compared with the European Union (EU) in discussions on regionalism and regional integration. Since its first contact with the EU in 1972, when ASEAN established an informal dialogue with the European Economic Community (EEC) to discuss tariff preferences for
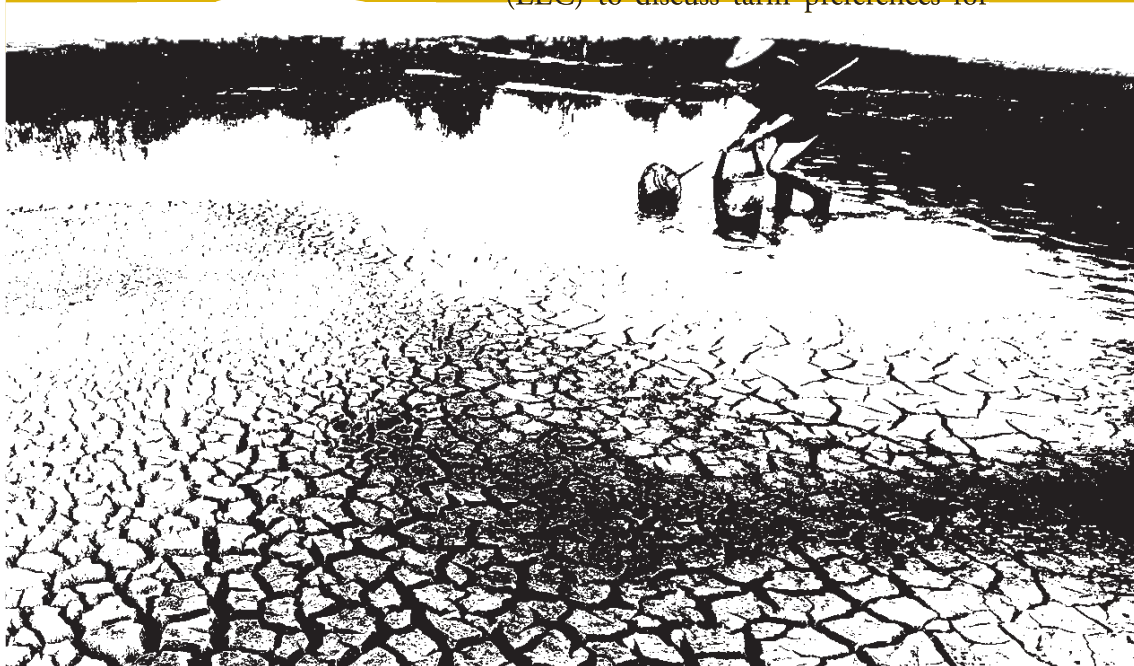
ASEAN products,[1] little has been written about the export of European-style regional integration to Southeast Asia.

Many have argued that there is no basis for a comparison between the two because of their fundamental historical, political and ideological differences. Others, however, like Fernando Rodrigo, contend that the EU and ASEAN are but variations of the same phenomenon, viz., regionalism.[2]

It is not this paper's aim to debate the two positions, but useful lessons can and should be learned by comparing the policy experiences of the two regions. Such a comparison may contribute to the development of new frameworks for future action and cooperation within and between the two regional organisations. This paper therefore seeks to expound upon the effectiveness of the two regional groupings as drivers of environmental management, more specifically in the regulation of air pollution as a relevant case in point, given the transboundary nature of air pollution and its relation to industrial emissions and economic development.

This paper is organised as follows: Part One discusses the EU experience, starting with section 1.1, which sets the historical and policy context of air pollution regulation in the EU in perspective; section 1.2 delves into the specifics of European air quality; section 1.3 takes stock of the present status of EU policy; 1.4 makes policy suggestions for the way forward; and 1.5 emphasises that global treaties and local action are needed to empower regional cooperative frameworks.

Part Two expounds upon the Southeast Asian experience. Section 2.1 describes the environmental challenges facing the region and changes in environmental discourse on air pollution; section 2.2 discusses the effectiveness of ASEAN as a driver for air pollution management, and more specifically with regard to transboundary haze and urban air pollution; 2.3 explains the poor performance record of ASEAN in this respect as related to the character of Asian regionalism

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[*] By the will of the authors, in this article the names of the authors are not in alphabetical order.

[1] http://www.aseansec.org/11849.htm (accessed 25 February 2011).

[2] F. Rodrigo, "Regional Cooperation versus Regional Integration: Are ASEAN and the European Union so different?", in *The European Union, United States and*

and the emphasis on regional cooperation as opposed to integration; and 2.4 discusses the potential for ASEAN as a driver of air pollution management given the latest relevant policy developments.

Part Three highlights key strategic lessons that can be learned from both regions and concludes the paper with policy recommendations based on these lessons.

EU policy – an effective driver?

Introduction to EU Air Pollution Policy

Without the atmosphere, there would be no life as we know it. It is therefore essential for our own health and the environment that the atmosphere be not perturbed by manmade processes. Air pollution levels depend essentially, firstly, on emissions (both manmade and biogenic), and thereafter on the chemical reactions that take place during the transport of pollutants in the atmosphere. The gradual increase in global average temperature will necessarily affect the chemical transformations, transport patterns and ultimate deposition of airborne pollutants. Climate change has therefore added a dimension of complexity to air quality governance.[3]

Air pollution has immediate and measureable effects on our health and on nature; its impacts on productivity and cost to society can hence be modelled to allow a decision-making framework to be set up.[4]

"Since the industrial revolution and the human activities associated with it, the quality of the air we breathe has deteriorated considerably".[5] The pollutants we emit into the atmosphere have been demonstrated to have effects on the climate as well as being

ASEAN: Challenges and Prospects for Cooperative Engagement in the 21st Century, K.S. Nathan (ed.), ASEAN Academic Press, London 2002, p. 334.

[3] O. Hertel, M.E. Goodsite, "Urban Air Pollution Climates throughout the World", in *Air Quality in Urban Environments*, R.E. Hester, R.M. Harrison (eds), RSC Publishing, Cambridge 2009, vol. 28, pp. 1-22.

[4] L.D. Hylander, M.E. Goodsite, "Environmental Costs of Mercury Pollution", in *Science of the Total Environment*, 368, 2006, pp. 352-370.

[5] http://ec.europa.eu/environment/air/index_en.htm (accessed 25 February 2011).

affected by it. For example, the pollutant ozone, which is hazardous to our health and a component in smog, also negatively affects crop yields and damages plants and natural eco-systems in ways that are not yet fully understood by scientists.[6]

Scientists have documented that in Europe, and likely in other areas, with the continued warming trend ozone levels will increase up to 30% in European cities and in a few cases even more than 30%. Therefore the impact of the warming effect on environmental pollution must be included as a parameter in the strategies deployed to keep the damaging concentrations below prescribed critical levels.[7]

Much of the world is looking to the EU for model solutions for air governance and the scientific and technical processes supporting it. ASEAN countries are presently enjoying growth and this will lead to impacts and pollution. There are issues associated with human activities that ASEAN countries can learn about from European air quality policy, and others, such as deforestation, where the EU experience is not likely to directly help, other than by documenting that clean air ultimately improves health, the climate and the environment, and is cost-effective.

Ultimately there is no "answer-key" to be found in European policies. While Europe once had the lead in this sector, there are indicators that due to the global financial crises, and in particular the 2010 European sovereign debt crises and May 2010 EU financial intervention plan, the EU will relinquish its role.

EurActiv announced "Brussels to argue for 30% CO_2 reduction target"[8] and went on in the announcement to explain that: The European Commission presented its strategy to reinvigorate global negotiations after the UNFCC 15th Conference of Parties gathered in Copenhagen (COP15) in March 2010, promising an analysis by the

[6] D.A. Grantz, A. Shrestha, "Ozone Reduces Crop Yields and Alters Competition with Weeds such as Yellow Nutsedge", in *California Agriculture*, 59, 2, 2005, retrieved from http://escholarship.org/uc/item/45x4r8s3 25 (accessed 25 May 2010).

[7] Z. Zlatev, "Impact of Future Climatic Changes on High Ozone Levels in European Suburban Areas", in *Climatic Change,* 101, 3-4, 2009, pp. 447-483.

[8] http://www.euractiv.com/en/climate-environment/eu-makes-case-boosting-co2-reduction-target-30-news-493637 (accessed 25 February 2011).

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summer of what it would take for Europe to move to a 30% reduction target. In May 2010 the European Commission stated that as a result of the economic downturn they estimated that the cost of meeting the current 20% target for greenhouse gas emissions[9] had dropped to € 48bn per year until 2020, which is €22bn down from an initial estimate of €70bn at the time when the package was agreed. For more background information and documents see.[10] It seems then that it would make economic sense for the EU to strive for a 30% reduction in greenhouse gasses; however, the 2010-appointed new EU Commissioner for Climate Action. Ms. Connie Hedegaard, stated: "Are the conditions right now? Would it make sense at this moment? My answer would be 'no'." She argued that a new international climate treaty would be needed before any such decision was taken.[11] Her statement though was probably influenced by a joint press conference, held on the same day prior to her own, where Germany and France had expressed their opinion that the EU should not raise the target to 30%.[12] Links to relevant documentation may be found in any of the EurActiv announcements, especially that of May 27th 2010.[13]

The situation is very dynamic. By October, 2010 EurActiv was reporting that the "EU [was] to leave decision on CO2 cuts until next year".[14] In fact, while once the EU had leading policies in air-pollution control, backed by the entire "knowledge triangle" – political leadership, research and education, and innovation-entrepre-

[9] In December, 2008 the EU climate and energy package laid out legislation to meet the EU's binding goal to reduce emissions from 1990 levels by 20% by 2020.

[10] For more background information and documents see http://ec.europa.eu/clima/policies/brief/eu/index_en.htm (accessed 25 February 2011).

[11] http://www.euractiv.com/en/climate-environment/hedegaard-presents-30-assessment-news-494533 (accessed 27 May 2010).

[12] http://www.euractiv.com/en/climate-environment/paris-berlin-signal-pause-in-eu-climate-efforts-news-494497 (accessed 27 May 2010).

[13] http://www.euractiv.com/en/climate-environment/hedegaard-presents-30-assessment-news-494533 (accessed 25 February 2011).

[14] http://www.euractiv.com/en/climate-environment/eu-leave-decision-co2-cuts-until-next-year-news-498773 (accessed 25 February 2011).

neurship-business –, today new obstacles to the keeping of this lead are looming on the horizon. This is reflected in the EU position at Cancun, summarized in the following statement of the EU Committee of the Regions (CoR) at the COP16 meeting: "Climate action starts in the regions but must be part of a global agreement"[15] (see also the documents linked in the press release).

The eurozone's €440bn debt guarantee scheme, the "European Financial Stability Facility (EFSF)", which France's Europe minister said marks an "unprecedented" change to the [EU] bloc's treaties[16] does not directly impact European environmental policies, but there will most likely be secondary impacts on the EU and its environmental policies as it is implemented, and these developments should be followed.

Universities and research may be at risk in countries with long histories of academic innovation and excellence, such as Denmark. Under the May 2010 Danish National Agreement to Restore the National Economy,[17] the Danish University system has just been asked to save approximately 10% of its present budget, and research funds have been frozen from 2013 at 1% of the GNP, despite the GNP falling as an effect of the financial crises. If this trend spreads to other countries, the European capacity to innovate in environmental management through advances in research and development will suffer not only in the short but also in the long term. If any one leg of the "knowledge triangle" is disrupted, the other two will fail as well. Thus, such policies will inevitably lead to a deterioration of the innovation-entrepreneurship-business leg of the triangle. The magnitude of this deterioration is yet to be quantified.

EU policy has had a history of effectiveness in the improvement of air quality in the bloc and, hence, planet-wide. However, recent

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[15] http://europa.eu/rapid/pressReleasesAction.do?reference=COR/10/85&format=HTML&aged=0&language=EN&guiLanguage=fr (Accessed 18 January 2011).

[16] http://www.ft.com/cms/s/0/d6299cae-69b5-11df-8432-00144feab49a.html (accessed 27 May 2010).

[17] http://www.statsministeriet.dk/multimedia/Aftale_om_genopretning_af_dansk_oekonomi_web.pdf (accessed 27 May 2010) (Danish), p. 28, p. 30.

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decisions connected to the macro-economic realities that have followed the global financial crises are hurting EU air-quality and climate policies both in the short and in the long term. It is hence likely that these policies will not be as effective as they have been so far, and that additional effort will be required in the future, once the economy stabilizes, for their effectiveness to be restored.

Finally, it should also be noted that the large number of more progressive bigger international companies that up to COP15 attempted to influence the international agenda towards taking steps forward in the reduction of emission climate gasses by technological means have been backing down as a result of the negative outcome of the COP15 negotiations. These companies had attempted to come up with a variety of technological approaches to the issue of air quality and asked for political solutions. However, the economical crises and the COP15 experience have led the progressive private sector to drive a new agenda; an additional missed global opportunity to positively affect air quality and the climate. At the COP16, private companies brought few new initiatives. For most, the main focus is still mitigation.

European Air Quality

The issue of air quality is one of the areas in which the EU has taken most action and continues to do so today. Ever since the early 1970s the "EU has been working to improve air quality by controlling emissions of harmful substances into the atmosphere, improving fuel quality, and integrating environmental protection requirements into the transport and energy sectors".[18,19,20,21]

The EU continues to actively legislate and adjust strategies with the best scientific information available. Despite this proactive

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[18] http://www.eea.europa.eu/themes/air (accessed 27 May 2010).

[19] http://www.eea.europa.eu/themes/air (accessed 27 May, 2010).

[20] http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Air_pollution_statistics (accessed 25 February 2011).

[21] http://ec.europa.eu/environment/air/index_en.htm (accessed 25 February 2011).

stance, however, much remains to be accomplished.

One example of the EU's proactive stance is the 2010 creation of the office of European Commissioner for Climate Action, for which Ms. Connie Hedegaard – former Danish minister of Climate and Energy and chairwoman of the COP15 conference – was appointed by EU President Barroso, with four mandates, as she discussed in an interview on May 26th 2010:[22]

1. "to help the EU meet its targets for 2020 and beyond in terms of reducing greenhouse gas emissions";
2. "to develop and implement the EU Emissions Trading System and promote links to systems in other countries in order to build an international carbon trading market";
3. "to promote the development and demonstration of low carbon and adaptation technologies, and to develop a strong scientific and economic basis for [the EU's] climate policies";
4. "to develop adaptation to climate change within the EU and to work with [her] fellow commissioners to build the adaptation dimension into all EU policies".

She is supported by a "Directorate-General for Climate Action which will have approximately 200 staff members once it is fully resourced".[23]

The EU has taken a global lead in addressing cross-cutting atmospheric issues and dealing with the pollutants that reduce air quality and affect the climate.[24] Its action, however, is hampered by national interests. For example, the EU mitigation goals are more ambitious than some of its member states' national mitigation goals. There should be incentives in place for all member states to reach the same mitigation targets, since air pollution knows no borders.

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[22]   http://www.research-europe.com/index.php/2010/05/connie-hedegaard-eu-commissioner-for-climate-action/ (accessed 24 May 2010).

[23]   http://www.research-europe.com/index.php/2010/05/connie-hedegaard-eu-commissioner-for-climate-action/ (accessed 24 May 2010).

[24] http://ec.europa.eu/research/environment/policy/article_1435_en.htm (accessed 25 February 2011).

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Thanks to EU legislation, much progress has been made in reducing ambient levels of air pollutants such as sulphur dioxide, lead, nitrogen oxides, carbon monoxide and non-methane volatile organic compounds such as benzene.

However, air quality continues to be a problem.[25,26] Ozone emissions continue to be an issue, as does smog formation. Both are likely to worsen with the warming climate.[27,28] In the future it will be especially important to "avoid the unmanageable [mitigation] and manage the unavoidable [adaptation]".[29]

Scientists are presently trying to decipher a puzzle: "Emissions of the two key [measured] pollutant concentrations in the air: particulate matter and ground-level ozone precursors have dropped since 1997, but air quality in the EU has generally not improved significantly since the late 1990s".[30] This is certainly not the case in all countries, and it is likely that a combination of several factors is leading to this fall in the concentration of measure pollutants concomitantly with a general decrease in air quality:[31]

1.   increased temperatures leading to perturbation of circulation;
2.   patterns in air-quality change caused by climate change;
3.   enhanced transboundary pollution coming from other continents;
4.   the effects of anthropogenic and mineral dust (Saharan dust

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[25]   ec.europa.eu/clima/sites/campaign/pdf/e_toolkit_brochure_en.pdf (accessed 25 February 2011).

[26]   www.erff.org.uk/documents/2003-annex-c.pdf (accessed 25 February 2011).

[27] Z. Zlatev, L. Moseholm, "Impact of Climate Changes on Pollution Levels in Denmark, in *Environ Model*, 217, 2008, pp. 305–319.

[28] Hertel, Goodsite, *Urban Air Pollution* cit.

[29] A. Ginzburg, "How to Avoid the Unmanageable and Manage the Unavoidable Climate Changes",
in *UN Chronicle*, 44, 2, 2007, p. 53.

[30] http://www.eea.europa.eu/themes/air (accessed 27 May 2010).

[31] As also discussed with Professor Henrik Skov, Aarhus University, Denmark.

outbreaks; see further discussion in the ASEAN part of this paper);

5. natural emissions of ozone and secondary particulate matter from precursor substances (volatile organic compounds) released from vegetation.

As recently as 2009, the EU was calling for improved standardisation and a best practice analysis of air quality monitoring via its *Seventh Framework Programme*, as the data is difficult to compare from one member state to another. As air pollution is generally trans-boundary, it is important to have comparable data to make effective policies and project and model pollution impacts.

The EU is actively taking steps to fund research needed to promote the development of innovative technologies that will effectively lower emissions rather than just dilute them in some manner; for example, via the European Institute of Innovation and Technology and its knowledge innovation centres. But, as described above, recent national actions might impede continued effective innovation in the EU.

The present status of EU policy

In the EU's Sixth Environment Action Programme (EAP) "Environment 2010: Our Future, Our Choice", Environment and Health is one of "the four main target areas requiring greater effort, and air pollution is one of the environmental issues highlighted in this area. The Sixth EAP aims to achieve levels of air quality that do not result in *unacceptable impacts* on, and *risks* to, *human health* and the *environment"*.[32]

Although the goals are clear, there are mechanisms to allow for their not being immediately met. The 2008 Air Quality Directive grants EU Member States, under "strict conditions", time extensions for meeting the air quality standards. Compliance must be achieved at the expiry of the time extension period through comprehensive air quality plans.

By the start of 2010, twenty-two decisions on time extensions for

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[32] ec.europa.eu/environment/air/index_en.htm (accessed 25 February 2011).

[33] PM stands for "particulate matter" and is the collective denomination for

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PM 10[33] concerning 18 Member States had been taken. Conditions for an exemption were satisfied in 54 air quality zones in nine Member States.[34] Some of these states would not normally be associated with high pollution levels and the regulations need to be improved to properly address particulates a fraction of the size of PM 10, viz., those classified as PM 2.5, as these may have greater adverse health effects than PM 10. Particulate matter is an issue in any region (Table 1) and must continue to be addressed with more technology, more research and policies to support public health.

Is air quality management in the EU achieving its objectives? The Commissioner for the Environment, Mr Stavros Dimas, recently argued that they are *not*. In his presentation of the mid-term review of the 6th EAP in 2007, he stated: "EU environmental policy is delivering tangible results for citizens and has helped the European industry to become a world leader in a number of sectors...despite this progress: Global emissions of greenhouse gases are rising, loss of biodiversity is not yet under control, pollution is still harming public health, volumes of waste are increasing in Europe".[35] The situation has not improved since, as demonstrated by the number of extensions granted in 2010.

In Europe, more than 70% of the population lives in cities amidst the associated ambient air pollution, which has been recognized as

solid or liquid particles added to the atmosphere by processes at the earth's surface, including dust and smoke caused naturally or by human actions, soot, pollen and suspended soil and sea salt particles. PM10 designates an air pollutant consisting of small particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers. At this size, they can enter air passages and penetrate deep into the lungs, which may result in adverse health effects. PM10 also causes a reduction in visibility of ambient air (see for example, http://cfpub.epa.gov/airnow/index.cfm?action=aqibasics.particle (accessed 25 February 2011).

[34] http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/259 (accessed 25 February 2011).

[35] http://ec.europa.eu/environment/newprg/index.htm (accessed 25 February 2011).

[36] WHO, *WHO Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen, Dioxide and Sulfur dioxide - Summary of Risk Assessment*, WHO Press, Geneva 2006.

Table 1. Ranges in annual average urban ambient air concentrations (µg/m³) of PM_{10}, NO_2, SO_2 and 1-hour average maximum concentrations of O_3 in different regions, based on a selection of urban data [36]

Region	Annual average concentrations			1-h max concentration
	PM_{10}	NO_2	SO_2	O_3
Africa	40 – 150	35 - 65	10 - 100	120 - 300
Asia	35 – 220	20 - 75	6 - 65	100 - 250
Australia/New Zealand	28 – 127	11 - 28	3 - 17	120 - 310
Canada/United States	20 – 60	35 - 70	9 - 35	150 - 380
Europe	20 – 70	18 - 57	8 - 36	150 - 350
Latin America	30 – 129	30 - 82	40 - 70	200 - 600

one of the major causes of adverse human health outcomes in urban areas[37,38,39,40]. A significant proportion of Europe's urban population live in cities where certain EU air quality limits (set for the protection of human health) are exceeded[41] and reductions in exposure to urban ambient air pollution can contribute to significant and measurable improvements in life expectancy,[42,43] and should therefore be a higher priority for action than what the EU track record is showing, given the number of exemptions issued in 2010.

[37] D.W. Dockery, C.A. Pope, X.P. Xu, J.D. Spengler, J.H. Ware, M.E. Fay, B.G. Ferris, F.E. Speizer, "An Association Between Air-Pollution and Mortality in 6 United-States Cities", in *New England Journal of Medicine*, 329, 1993, pp. 1753-1759.

[38] B. Zou, J.G. Wilson, F.B. Zhan, Y.N. Zeng, "Spatially Differentiated and Source-specific Population Exposure to Ambient Urban Air Pollution", in *Atmospheric Environment*, 43, 2009, pp. 3981-3988.

[39] WHO, *WHO Air Quality Guidelines for Particulate Matter* cit.

[40] F.W. Lipfert, R.E. Wyzga, J.D. Baty, J.O. Miller, "Traffic Density as a Surrogate Measure of Environmental Exposures in Studies of Air Pollution Health Effects: Long-term Mortality in a Cohort of US Veterans, in *Atmospheric Environment*, 40, 2006, pp. 154-169.

[41] http://www.eea.europa.eu/themes/air (accessed 27 May 2010).

[42] C.A. Pope, M. Ezzati, D.W. Dockery, "Fine-Particulate Air Pollution and Life Expectancy in the United States", in *New England Journal of Medicine*, 360, 2009, pp. 376-386.

[43] Dockery, Pope, Xu, Spengler, Ware, Fay, Ferris, Speizer, *An Association Between Air-Pollution and Mortality* cit.

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Given the movement in the EU towards smaller cities, the situation will be challenging to improve as it is more difficult to address diffuse than concentrated air pollution sources.

Population growth is outrunning technological mitigation. By 2008, more than half the world's population was living in towns and cities. By 2030, this number is predicted to be almost 5 billion, with urban growth concentrated in Africa and Asia. Mega-cities (over 10 million residents) are receiving a large part of the resources allocated to address air quality issues, but *most new growth is predicted to occur in smaller towns and cities.* These have fewer resources to respond to the magnitude of the change.[44]

The way forward?

Aligning energy use, switching to sustainable energy sources, and take mitigating actions such as the establishment of (super) smart grids is a defendable way forward.[45]

With effective energy management, effective air governance will follow, since in 2007 five energy-related sectors – 1. stationary combustion in manufacturing industries and

construction; 2. residential: stationary plants; 3. road traffic: passenger vehicles; 4. road traffic: heavy duty road vehicles; 5. power plants – were responsible for more than half of all EU-27 "key category" emissions of air pollutants.[46, 47, 48]

Pollutants such as those in the "key category emissions" are ubiquitous in urban areas, and besides particulate matter include gaseous

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[44] UNFPA, *UNFPA State of World Population 2007 - Unleashing the Potential of Urban Growth*, UNFPA, 2007.

[45] http://www.supersmartgrid.net (accessed 29 May 2010).

[46] EEA-ETC/ACC 2007, http://themes.eea.europa.eu/Sectors_and_activities/energy/indicators/EN05%2C2008.11/Fig_2/view (accessed 27 May 2010).

[47] *National Emission Ceilings (NEC) Directive, 2001* http://ec.europa.eu/environment/air/pdf/nec_eu_27.pdf (accessed 27 May 2010).

[48] EEA, *NEC Directive Status Report 2008*, Technical Report n. 11, EEA, 2009. http://www.eea.europa.eu/publications/nec-directive-status-report-2008 (accessed 27 May 2010).

[49] NO_X is a designation for nitric oxide gas (NO), nitrogen dioxide gas (NO_2),

pollutants such as nitrogen oxides (NO_x),[49] carbon monoxide (CO), non-methane volatile organic compounds (NMVOCs),[50] and many other gases and particles.

An example of a positive action that has had unintended negative consequences on air quality in Europe is the mandatory use of NO_x-reducing technologies on vehicles, such as catalytic converters.

These technologies are leading to an increased fraction of directly emitted NO_2 from road traffic. This effect is negatively enhanced by the increase of the number of vehicles using diesel motors without good particle filters. The particles in the air react with the NO_x, with the result that the air quality does not necessarily improve.[51]

For an example in Copenhagen, see Figure 1: the two plots illustrate the decrease in NO concentrations as a result of the increasing number of vehicles with catalytic converters in the Danish car park, but also that this decrease is not reflected in the NO_2 concentrations, which have remained more or less constant during the considered time period.[52]

It is therefore clear that, whatever combination of technology, research and education is employed to improve air quality, policies must be grounded both in theoretical studies and in continued

and many other gaseous oxides containing nitrogen, http://www.epa.gov/OCE-PAterms/nterms.html (accessed 25 February 2011). The brown haze seen over cities is composed mainly of nitrogen oxides. The main source in European urban areas is from vehicle exhaust. Nitrogen oxides are also partly responsible for the generation of ozone, which is produced when they react with other chemicals in the presence of sunlight.

[50] NMVOCs are organic chemical compounds such as benzene and butane, not including methane, which under normal conditions can vaporize and enter the atmosphere. NMVOCs are mainly emitted from transportation, industrial processes and use of organic solvents. NB: Background date for European Air Pollution found at http://www.eea.europa.eu/themes/air/about-air-pollution (accessed 25 February 2011) and associated web sites to include definitions from the glossary.

[51] D.C. Carslaw, S.D. Beevers, "Development of an Urban Inventory for Road Transport Emissions of NO_2 and Comparison with Estimates Derived from Ambient Measurements", in *Atmospheric Environment*, 39, 2005, pp. 2049-2059.

[52] O. Hertel, T. Ellermann, F. Palmgren, R. Berkowicz, P. Løfstrøm, L.M. Frohn, C. Geels, C.A. Skjøth, J. Brandt, J. Christensen, K. Kemp, M. Ketzel, "Integrated Air-quality Monitoring - Combined Use of Measurements and Models in Monitoring Programmes", in *Environmental Chemistry*, 4, 2007, pp. 65-74.

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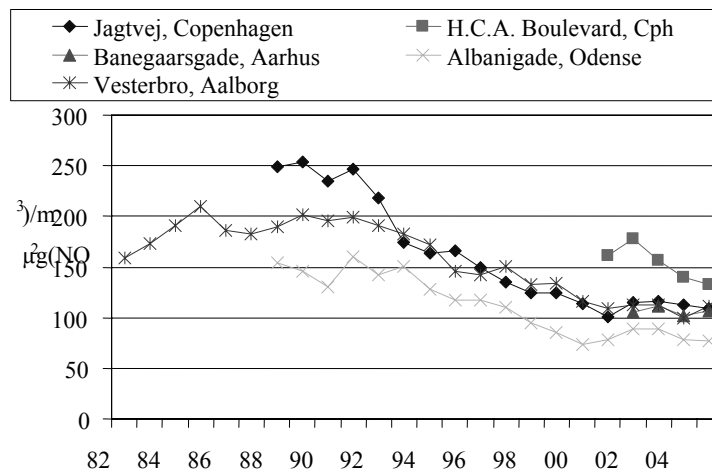
monitoring and evaluation of the results.

Regional efforts require global treaties and local action

The EU is acting at many levels to reduce exposure to air pollu-tion through European Commission legislation, co-operation with sectors responsible for air pollution, national authorities, regional authorities and NGOs, and by promoting research and innovation.

An example is the *Clean Air For Europe (CAFE)*[53] initiative, which has led to the formulation of a thematic strategy setting out the objec-tives and measures for the next phase in European air quality policy.

However, continued efforts at the international level to reduce trans-boundary pollution are required. This is especially an issue given that European countries are exposed to air pollution originat-ing from neighbouring and distant countries, as is also the case for

[53]   http://europa.eu/legislation_summaries/environment/air_pollution/ l28026_en.htm (accessed 28 May 2010).

ASEAN members.

Enhanced integrated modelling must be a priority to investigate the economics behind transitioning from a fossil fuel based energy system to sustainable energies. Adaptation and mitigation strategies must be merged, an approach designated by the neologism "adaptigation".[54] Lastly, individuals, communities and organizations must be willing to act in the absence of international commitments, not only because this is morally correct, but also because it makes economic sense for EU citizens. As discussed in 1.1, the EU has advanced the above position at the COP16, but financing and international policies are needed for further action in this direction to be implemented.

Is ASEAN an effective driver for air pollution management in Southeast Asia?

Air pollution in Southeast Asia: Transboundary Haze and Urban Air Pollution

Southeast Asia, home to about 8.7 percent of the world's population with 580 million people,[55] is a small contributor to global carbon emissions – 12 percent in 2000 – but stands to lose 6.7 percent of its GDP every year by 2100 due to climate change,[56,57] higher than the global average.[58] The U.S. by contrast, the world's largest economy and the second biggest carbon emitter, will only lose 3.6 percent of its GDP.

The region's contribution to global carbon emissions linked to climate change has therefore been an increasingly salient topic of debate in the regional and international arena. The issue of air pollution in

[54] R. Langlais, "Adaptigation", in *Journal of Nordregio*, 9, 4, 2009.

[55] ASEAN, *Fourth ASEAN State of the Environment Report 2009*, Executive Summary, ASEAN Secretariat, Jakarta 2009, p. 7.

[56] ASEAN Development Bank, *The Economics of Climate Change in SouthEast Asia: A Regional Review,* Highligths, Asean Development Bank, Philippines 2009, p. V.

[57] Ibid.

[58] Ibid.

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Southeast Asia, however, is not new.[59,60] It first emerged with regard to the problem of Transboundary Haze, caused by forest fires in Indonesia when farmers use slash-and-burn techniques to clear the forest for agriculture.[61] The first instances of problematic haze levels occurred in 1982 and again in 1987, with subsequent recurrences every three to four years. The turning point however, came in 1997, when the region experienced its worst episode of haze, revealing the shortcomings of the ASEAN Way[62] and the limitations of its consensus-based regionalism. The Regional Haze Action Plan was thus set up to pave the way for "better management policies and enforcement"[63] among other regional cooperation objectives. The initiative, however, bore little fruit, as will be discussed in the following sections.

With the emergence of the Climate Change discourse, the discussion on air pollution in the region started to shine the spotlight on urban emissions. The region's urban centres, previously seen as victims of uncontrolled smog from rural fires, are now increasingly coming under fire themselves. Asia's cities, the growth engines of the region, are also known to be major engines of pollution, costing cities like Bangkok, Jakarta and Kuala Lumpur about US$5 billion (10 percent of combined city income) annually from dust and lead pollution.[64]

Cities consume 75% of the world's energy and, accordingly, produce

[59] www.fire.uni-freiburg.de/iffn/country/id/id_32.htm (accessed 25 February 2011).

[60] www.envplan.com/epa/fulltext/a36/a3674.pdf (accessed 25 February 2011).

[61] J. Cotton, "The "Haze" over Southeast Asia: Challenging the ASEAN Mode of Regional Engagement", in *Pacific Affairs*, 72, 3, 1999, p. 1.

[62] The expression "ASEAN Way" denotes the basis of regional cooperation among ASEAN member countries, which emphasizes three fundamental standards: 1) non-interference in other member states' domestic affairs; 2) consensus building and cooperative programs rather than legally binding treaties; 3) preference for national implementation of programs rather than reliance on a strong region-wide bureaucracy (K.L. Koh, N.A. Robinson, "Strengthening Sustainable Development in Regional Inter-Governmental Governance: Lessons from the 'ASEAN Way'", in *Singapore Journal of International & Comparative Law*, 6, 2002, pp. 640-682).

[63] http://www.aseansec.org/10371.htm (accessed 18 May 2010).

[64] UNESCAP, *State of the Environment in Asia and the Pacific 2000*, Chapter 7, Urban Environment, UNESCAP 2002, p. 152.

[65] WWF, *Mega-Stress for Mega-Cities: A Climate Vulnerability Ranking of Major*

75% of global greenhouse gas (GHG) emissions.[65] Transport-related carbon dioxide emissions are expected to increase 57% worldwide in the period 2005-2030, with transport sectors of developing countries - particularly in Asia - contributing about 80% of this increase. More than 50% of the rise in global fuel consumption will come from transport in developing Asia, making it the sector responsible for the largest growth in fuel emissions worldwide.[66] In addition, Southeast Asia's rising urban population has severe implications for not only the quality of air in urban centres, but also its cities' vulnerability to and adaptive capacity against the impacts of climate change.

The latest ASEAN State of the Environment Report showed that 44 percent of the region's total population lived in urban areas in 2005, and this is projected to increase to 55 percent by 2020. This will lead to higher energy consumption and an increase in the number of vehicles, which will further exacerbate traffic congestion, fuel inefficiency and, concomitantly, carbon emissions. In fact, Asia's mega-city population is increasingly exposed to levels of ambient air pollution that rival and often exceed that of industrialized countries in the first half of the 20th century.[67]

The costs of air pollution are immense: over half a million premature deaths every year in Asia are attributed to air pollution, and millions more suffer from respiratory illnesses, particularly children and the elderly. Losses in productivity and healthcare costs due to air pollution alone wipe out two to four per cent of the GDP in Asian cities.[68] Other downstream associated effects of global warming due to carbon emissions are even more devastating. Rising sea-levels increase the risk of flooding, salt water intrusion and coastal erosion, posing a major threat to Southeast Asia, with its long coastlines.[69]

Coastal Cities in Asia, World Wildlife Fund, 2009.

[66] Asian Development Bank, *ADB Urges New Approaches to Ease Traffic Congestion in Asia's Gridlocked Cities*, Asian Development Bank Press, 2009.

[67] WHO, *The World Health Organization Report 2002: Reducing Risks, Promoting Healthy Life*, World Health Organization, Geneva 2002, p. 68.

[68] CAI-Asia, *Clean Air Initiative for Asian Cities Center. Annual Report 2008*, CAI-Asia, Philippines 2008 p. 2.

[69] Asian Development Bank, *The Economics of Climate Change in Southeast*

While the region has experienced a long history of changes in flood intensities and coastlines, the higher concentration of population and economic activity in coastal areas and deltas following the industrialization of the region has made it more vulnerable to rising sea-levels. Other studies say that most deltas in Asia are already experiencing accelerated rates of relative sea-level rise, above the global average.[70] In Singapore, the central business district, airport and seaports are all located along the coast and lie less than two meters above sea level. Many of Singapore's reservoirs lie adjacent to the coast, putting it at high risk of water contamination from rising sea levels.

When considering the risk of rising sea level in Asia, it must be taken into account that many coastlines and river mouths have experienced a long history of changes in flood levels, as well as in the size and extension of coastlines, whether via anthropogenic development or natural occurrence. This led historically to the development of effective adaptive strategies. However, most of the danger often derives from an excessive number of people living in areas that have never had stable or safe environmental conditions, independently from current global or regional climatic trends. Therefore any future adaptation strategy must also address the above development challenges.

Indonesia, Southeast Asia's largest carbon emitter, is now the world's third largest emitter of GHG after the US and China because of logging and burning, which has to date destroyed nearly half of the remaining 80 percent of its forest cover.[71] Estimates suggest that deforestation accounts for up to 20% of global carbon emissions.[72] The full cost of Indonesia' emissions is not known, but an ADB study published in 2002 projected health issues due to nitrogen dioxide emissions for the whole of Jakarta in 2015 to be approximately three times as many as in 1998, and health problems associated with PM10

Asia cit., p. 2.
[70] WWF, *Mega-Stress for Mega-Cities* cit., p. 7.
[71] K. Marks, "Illegal logging responsible for loss of 10 million hectares in Indonesia", in *The Independent*, 26 October 2009.
[72] http://ec.europa.eu/europeaid/where/asia/regional-cooperation/environment/flegt_en.htm (accessed 18 May 2010).
[73] Asian Development Bank, *Study on Air Quality: Future Trends, Health Impacts, Economic Value and Policy Options*, Asian Development Bank, Jakarta 2002,

(fine particles suspended in the air) to be 2.4 times as many.[73]

Is ASEAN an effective driver for air pollution management?

The above question can be further specified as follows: Given the wide disparities in levels of development between the regional organization's member countries and their diverse political models, can ASEAN be a key driving force for environmental management in the region?

ASEAN has produced a multitude of declarations, agreements and action plans to lay out roadmaps, monitoring mechanisms, guidelines and policies to prevent forest fires and mitigate haze pollution (see Table 2).

Of these, this section will only focus on the Regional Haze Action Plan (RHAP) and the 2002 ASEAN Agreement on Transboundary Haze Pollution, which marked key watersheds and turning points in ASEAN's regional cooperation on Transboundary Haze. Additionally, this section will also discuss the ASEAN Socio-Cultural Community (ASCC) Blueprint as a part of the latest Roadmap for an ASEAN Community 2009-2015. This Blueprint expands ASEAN's environmental strategies and action plans beyond Transboundary Haze to include urban air pollution (albeit very cursorily) under the banner "Promoting quality living standards in ASEAN cities/urban areas".[74]

The subsequent section will argue that the politico-historical path dependencies of ASEAN's regional architecture makes it a weak driver for regional cooperation in air pollution management for the following reasons: 1) regionalism in Southeast Asia is couched in its colonial past and anti-globalization legacy, making national sovereignty sacrosanct in any cooperative initiatives; 2) ASEAN has a loose organizational structure that is interest-based rather than rules-based, and thus makes enforcement of agreements difficult; 3) the region has a very weak sense of community due to its wide diversity of socio-political systems and levels of economic develop-

p. 37.

[74] R. Letchumanan, "ASEAN Environmental Management Framework", Paper presented at the *Conference on Regional Environmental Cooperation in EU and ASEAN: Lessons from Two Regions*, Institute of Southeast Asian Studies, 22-23

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Table 2

ASEAN Agreements and Declarations related to Environment	Year
Singapore Resolution on Environmental Sustainability and Climate Change	2009
Joint-Statement to the 15th Meeting of the Conference of Parties to the UN Framework Convention on Climate Change and the 5th Meeting of the Parties to the Kyoto Protocol	2009
Cha-Am Hua Hin Declaration on the Roadmap for the ASEAN Community	2009-2015
ASEAN Declaration on the 13th session of the Conference of the Parties to the UNFCCC and the 3rd session of the CMP to the Kyoto Protocol	2007
Singapore Declaration on Climate Change, Energy and the Environment	2007
ASEAN Declaration on Environmental Sustainability	2007
Cebu Resolution on Sustainable Development	2006
Agreement on the Establishment of the ASEAN Centre for Biodiversity	2005
ASEAN Declaration on Heritage Parks	2003
Yangon Resolution on Sustainable Development	2003
ASEAN Agreement on Transboundary Haze Pollution	2002
Jakarta Declaration on Environment and Development	1997
Bandar Seri Begawan Resolution on Environment and Development	1994
Singapore Resolution on Environment and Development	1992
Kuala Lumpur Accord on Environment and Development	1990
Jakarta Resolution on Sustainable Development	1987
Agreement on the Conservation of Nature and Natural Resources	1985
Bangkok Declaration on the ASEAN Environment	1984
ASEAN Declaration on Heritage Parks and Reserves	1984
Manila Declaration on the ASEAN Environment	1981

Source: ASEAN Environment website: http://environment.asean.org/index.php?page=agreements

ment, which renders any norm-setting exercise at the regional level more symbolic than functional. Hence, while ASEAN has fared well in institution building, this process has thus far had little impact in terms of implementation at the national level.

Transboundary Haze Pollution

The earliest ASEAN initiative on environmental cooperation started in 1977 with the ASEAN Subregional Environmental Programme. But it was in 1992 that the link between environmental issues and sustainable development was formally recognized, in the Singapore Declaration.[75] Nevertheless, the coupling of the environ-

February 2010 Singapore.

ment and sustainable development did little to stop or prevent the worst haze pollution crisis in 1997, which affected millions of people across Southeast Asia and caused losses estimated at US$9 billion in agricultural production, transportation, tourism and other economic activities.[76]

Following the 1997 haze, the Regional Haze Action Plan (RHAP) was created, which set out co-operative measures amongst ASEAN member countries to manage the haze problem. Its three primary objectives were 1) to prevent land and forest fires through better management policies and enforcement; 2) to establish operational mechanisms to monitor land and forest fires; 3) to strengthen regional land and forest fire-fighting capability and other mitigating measures.[77]

There were a few notable achievements under this plan, including the designation of the ASEAN Specialised Meteorological Centre (ASMC) as the regional information centre for compiling, analyzing and disseminating information derived from satellite imagery and meteorological data needed to monitor land and forest fires. The 'zero burning' policy[78] and development of controlled burning guidelines under the RHAP also achieved some degree of success with the investigation and prosecution of a number of plantation companies accused of illegal open burning.[79] The most recent (Fourth) ASEAN State of the Environment Report indicates that deforestation slowed significantly between 2006 and 2007 and new protected areas have been established in Lao PDR, Malaysia, Myanmar, the Philippines, Thailand and Vietnam.[80]

In spite of this, however, Indonesia continues to lose on average 2 million hectares of forest every year, double the annual loss in the 1980s.[81]

[75] http://www.aseansec.org/10371.htm (accessed 18 May 2010).

[76] WSSD, *Southeast Asia Sub-regional Report for the World Summit on Sustainable Development: Synthesis report for Asia and the Pacific*, October 2001, p. 232.

[77] http://www.aseansec.org/10371.htm (accessed 18 May, 2010).

[78] Environment Division of ASEAN Secretariat, HazeOnline v.2008, http://haze.asean.org/info/history-response (accessed 18 May 2010)

[79] E. Palmujoki, *Regionalism and Globalism in Southeast Asia*, Palgrave Macmillam, New York 2001, p. 174.

[80] ASEAN, *Fourth ASEAN State of the Environment Report 2009* cit., p. 14.

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Illegal logging persists, as does poor regulation of forest licensing, often granted to large companies and businesses with political connections. The investigation and prosecution of companies engaged in illegal logging in Indonesia is a long and bureaucratic process, often riddled with leakages in the justice system, which is susceptible to bribery and corruption. Active policing of illegal logging in the country has often been left to activist groups, which in April 2010 took 12 public officials to the presidential Judicial Mafia Eradication Task Force for suspected involvement in a major illegal logging case in Riau province.[82]

The ASMC, which has been effective in disseminating updated and accurate information on hotspots in the region, also has its limitations. The lack of enforcement at the national level and the inability of neighbouring states to use ASEAN to assert pressure on haze producing counties for compliance, in spite of reliable data from the ASMC, have rendered the RHAP a plan of action only in name. The vagueness of terms like "other mitigating measures" and "strengthening capabilities" has left the RHAP, and the whole slew of ASEAN Action Plans, open to interpretation and manipulation in political speak.

Another key pillar in the region's efforts at cooperation in haze pollution regulation was the ASEAN Agreement on Transboundary Haze Pollution adopted in 2002. The agreement highlights 10 priority areas, including land and forest fires and transboundary haze pollution. It also places great emphasis on preventing and monitoring transboundary haze pollution by strengthening cooperation and coordination, taking precautionary measures and managing natural resources in a sustainable manner. Importantly, it highlights the need for all stakeholders to be involved.

However, the reality of regional cooperation in this area clearly falls short of these objectives, since the key haze-contributing country, Indonesia, has not ratified the agreement and little has been achieved in the regulation of forest fires and illegal logging there. The continued haze pollution in Southeast Asia year after year - haze pollution in Singapore peaked again in 2006 at 150 PSI (anything

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[81] Marks, *Illegal logging* cit.
[82] C. Pasandaran, F.E. Satriastanti, "Officials Accused of Ending Probe in Riau Logging Case", in *Jakarta Globe*, 22 April 2010.

between 101-200 is considered unhealthy)[83] – also bears testimony to the ineffectiveness of the regional agreement to manage the haze problem. Recent reports also showed that forest fires in the region in fact increased in the first quarter of 2010, even as Indonesia announced a new haze action plan in which it formally pledged to cut its hot spots by 20 percent a year up to 2020[84] and enhance enforcement actions against offenders in fire-prone provinces.

More importantly, ASEAN agreements on Transboundary Haze have skirted around the issue of external capital flows that finance illegal logging in Indonesia. Studies have shown that some of the financing for illegal logging operations in Indonesia comes from or passes through some of its wealthier neighbours, including Singapore and Malaysia.[85] Malaysian companies have been reportedly involved in illegal logging operations in Indonesia, while Singapore has been identified as a potential source of external capital for illegal logging operations in the country. [Policies to clamp down on companies who fund or are engaged directly in illegal logging however do not feature in the RHAP or the 2002 ASEAN Agreement on Transboundary Haze Pollution, illustrating again of the contradictions in ASEAN's impetus for continued economic growth and its environmental sustainability goals.]

Urban Air Pollution

In terms of urban air pollution, ASEAN cities have done well to reduce air pollution through the phasing out of the use of lead. However, coal still accounts for 57 percent of energy consumption,[86] even as the region's energy demand is poised to almost double by 2030. At the present rate of economic and industrial development and growing urban population, coal consumption is expected to

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[83] http://www.weather.gov.sg/wip/web/ASMC/Haze_Information (accessed 18 May 2010).

[84] A. Gunasingham, "Fears over Haze as Hot Spots Increase", in *The Straits Times*, 1 May 2010.

[85] J. Walters, "Following the Proceeds of Illegal Logging in Indonesia", in *Trends & Issues in Crime and Criminal Justice*, 391, March 2010.

rise, thereby increasing air pollution. Carbon emissions will be further exacerbated by higher levels of consumption, transportation – the number of vehicles on the roads in Southeast Asia could triple to 92 million[87] – and infrastructural developments in cities, resulting in greater risk of creating "heat islands".[88]

Under ASEAN's latest roadmap towards an ASEAN Community, three key blueprints were created: 1) the ASEAN Political-Security Community (APSC); 2) the ASEAN Economic Community (AEC); 3) the ASEAN Socio-Cultural Community (ASCC). Environmental issues fall under the ASCC Blueprint.

The ASEAN Initiative on Environmentally Sustainable Cities (AIESC), which covers 25 ASEAN cities, was endorsed in 2005 to help cities develop clean air, clean water and clean land programmes, and build capacity to implement them.[89] ASEAN also initiated the ASEAN Environmentally Sustainable City (ESC) Award Programme, which recognizes cities that have made exemplary efforts towards environmental sustainability.[90] A larger objective of the programme however, is to create a platform for exchange of best practices and to increase knowledge and awareness of different models of urbanization, indigenous solutions and environmental stewardship.[91]

Individually, ASEAN member countries have also introduced new regulations and stricter standards, cleaner fuels, green vehicles, improving public transport and promoting renewable energy.[92] Indonesia, Singapore, Thailand and Vietnam have established their national eco-labelling schemes[93] - though it is yet unclear how rigorous and strict these national standards are. In Singapore, the Building

[86] ASEAN, *Fourth ASEAN State of the Environment Report 2009* cit., p. 10.

[87] F. Chan, "Demand for Petrochemicals in Asia is Soaring", in *The Straits Times*, 05 May 2010.

[88] An urban heat island describes the characteristic warmth of both the atmosphere and surfaces in cities (urban areas) compared to their (non-urbanized) surroundings. Heat islands are examples of unintentional climate modification when urbanization changes the characteristics of the Earth's surface and atmosphere.

[89] http://www.aseansec.org/background2.htm (accessed 18 May 2010).

[90] 10 cities in ASEAN received this award on 8 October 2008

[91] Letchumanan, *ASEAN Environmental Management Framework* cit., p. 16.

[92] ASEAN, *Fourth ASEAN State of the Environment Report 2009* cit., p. 16.

and Construction Authority (BCA) has set a target to achieve Green Mark certification of at least 80 per cent of Singapore's buildings by 2030, and the National Climate Change Committee has launched various programmes and initiatives to promote energy efficiency, recycling and green transport in Singapore. This has also had some measure of influence in the region, with Singapore Green Mark-rated buildings sprouting up in Indonesia, Vietnam and Malaysia.[94] Indonesia is also aiming to raise US$1 billion in investments to develop geothermal energy as an alternative source of power to coal.[95]

However, the categorization of environmental issues under the socio-cultural blueprint (ASCC) of the ASEAN Community as opposed to the economic (AEC) or security (APSC) sphere of concern, in spite of its economic and security ramifications, is reflective of how ASEAN governments prioritize and perceive environmental issues. The environment has not been given the economic and political credence it deserves and continues to be relegated to the social and cultural periphery of state and regional affairs. As illustrated in the prior section, environmental management is also an issue of good governance, regulation of capital flows, industrial and infrastructural development, social and political security, and sustainable economic growth. Hence, environmental issues should be embedded in ASEAN's economic, political and security discussions, and involve not just Senior Officials on the Environment, but also the region's finance, economics and foreign ministers.

In all, ASEAN has been successful in creating common norms and policy frameworks on environmental issues; ensuring stable relationships among member states; providing a platform for issues to be discussed and policy makers to interact; and laying out a foundation for future implementation of environmental agreements. However, as a driver for air pollution management in the region, ASEAN has not been very effective in producing the desired outcomes. As Koh and Robinson highlighted in their assessment of the ASEAN model in regional environmental governance, the general lack of

[93] Ibid., p. 18.
[94] "Singapore to Host Global Forum on Eco-building", in *The Straits Times*, 20 March 2010.

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concrete instruments for translating ASEAN commitments into national level action, the preference for soft law, and the emphasis on consensus and capacity building have hindered implementation of effective environmental programmes.[96]

Asian Regionalism: explaining regional cooperation in ASEAN

In spite of the seeming lack of tangible outcomes from ASEAN's litany of agreements, blueprints and road maps, one cannot make a fair assessment of ASEAN's regional cooperation efforts without taking adequate account of the historical and political context. ASEAN cannot be judged by EU standards of regional cooperation, not least because of the historical context in which it was formed, but also because of its distinctive political and economic characteristics.

ASEAN was formed in 1967 amidst several significant shifts and changes in the international system. The world was still in the throes of the Cold War, while Southeast Asia had just emerged from the Japanese Occupation and the withdrawal of colonial powers from the region shortly thereafter. But its new found national sovereignty hung on a balance in the face of new threats from Communist China in the East threatening to spread its sphere of influence via North Vietnam. Territorial disputes between Malaysia and the Philippines over Sabah and the Confrontation between Malaysia and Indonesia also aggravated distrust between neighbours.[97] It is within this context of power contestations that ASEAN was formed to establish peaceful relations within the region so that member states could focus on consolidating independence, nation building, and promoting national development premised upon the principle of non-interference. The emphasis was therefore on "soft regionalism" and "shared norms, and socialization

[95] "Geothermal Energy Summit in Bali", in *BBC News*, 25 April 2010.
[96] K.K. Lian, N.A. Robinson, "Regional Environmental Governance: Examining the Association of Southeast Asian Nations (ASEAN) Model", in *Global Environmental Governance: Options & Opportunities*, D.C. Esty, M.H. Ivanova (eds), Yale School of Forestry & Environmental Studies, New Haven CT 2002, pp. 101, 109, 110.
[97] Rodrigo, *Regional Cooperation versus Regional Integration* cit., p. 335.

in search of a common identity",[98] as opposed to formal institutionalization and legalistic decision-making procedures as in the EU.

The regional grouping, therefore, was created to promote not regional integration, but regional cooperation, which ultimately serves to protect and reinforce national sovereignty and economic independence, and prevent external powers from intervening in regional affairs.

The then foreign minister of Indonesia, Ali Alatas, also argued that, unlike what happened in Europe, "there has been no commonly perceived, single security threat in the Asia-Pacific region, but rather a multiplicity of security concerns".[99] Added to this, the "wide diversity of cultures, socio-political systems and levels of economic development"[100] has resulted in the lack of a shared sense of community among member states of ASEAN. Therefore, while member states may have signed up to the 2002 ASEAN Agreement on Transboundary Haze Pollution, as well as ASEAN's 19 other agreements on the environment, this does not amount to the establishment of a collective consciousness of climate change as a common and urgent security threat to all regional states. Hence, while ASEAN's regional efforts in creating new institutional frameworks for cooperation in environmental management may be seen as a positive step towards institution building and setting new collective norms and values on the environment, members ultimately revert to "simply operat[ing] within an association of states rather than within a collective body, bound by shared norms and able to make binding decisions".[101]

Amitav Acharya also argues that despite the association's efforts at strengthening and legalizing their institutional framework to cope with new pressures and make provisions for more "flexible engagement" among member states – as evident in the ASEAN Charter – Asian regionalism remains under-institutionalized because of the

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[98] A. Acharya, "Theoretical Perspectives on International Relations in Asia", in *International Relations of Asia*, D. Shambaugh, M. Yahuda (eds), Rowman & Littlefield Publishers, Lanham MD 2008, p. 71.

[99] Id., *Whose Ideas Matter? Agency and Power in Asian Regionalism*, Cornell University Press, Ithaca and London 2009, p. 116.

[100] Ibid.

[101] N. Thomas, *Governance and Regionalism in Asia*, Routledge, London and

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path-dependencies created by localization. The authoritarian domestic politics in the region were already incorporated into ASEAN's normative thought prior to the ASEAN framework for Asian regionalism, and the non-interference norm in ASEAN was therefore to a large extent geared towards authoritarian regime maintenance.[102]

Nicholas Thomas highlights three obstacles to regional governance in Southeast Asia: 1) sovereignty; 2) lack of leadership; 3) lack of trust. Southeast Asia's relatively young, post-colonial states (barring Thailand, though its own colonial encounters have also shaped its sense of sovereignty and internal politics) have underdeveloped state identity, which can lead to an "unnecessarily strong affirmation of those aspects that are considered fixed" and an "over-promotion of sovereignty".[103] The absence of one particular dominant state in the region with the resources and political clout to influence the other states has also crippled attempts to deepen regional integration in ASEAN. Lastly, the frequent differences of opinion within ASEAN – as evident in the case of Indonesia denying being the key source of haze pollution – indicate the lingering of mutual distrust among member states.[104]

ASEAN potential for air pollution management

In assessing ASEAN's efficacy as a driver for air pollution management, one must consider what constitutes being a "driver". As far as institution building is concerned, and as a platform for cooperation, creating common goals and promoting awareness at the policy level, ASEAN has been a successful driver. The ASEAN Senior Officials on the Environment (ASOEN) meet every year to reinforce common understandings and positions on environmental issues; there have been some 20 Agreements and Declarations related to the environment since 1981; the ASEAN State of the Environment Report released every three years has been a good source of information; and ASEAN's collage of

New York 2009, p. 23.

[102] A. Acharya, "How Ideas Spread: Whose Norms Matter? Norm Localization and Institutional Change in Asian Regionalism", in *International Organization*, 58, 2, 2004, p. 268.

[103] Thomas, *Governance and Regionalism* cit., p. 19.

working plans and blueprints have clearly stated goals and objectives.

But without administrative capacity, which is crippled by the association's holy grail of non-interference and the employment of loose informal regulative norms as the foundation for regional cooperation in environmental management, ASEAN's effectiveness as a driver for air pollution and wider environmental management will be limited.

There are nonetheless some positive signs. The ASEAN Charter adopted in November 2007 was the first attempt at providing the basis for a rules-based regime, which would enhance the association's capacity to mediate internal conflicts among member states. For the first time, it commits its members to democracy, good governance and human rights, albeit without the use of "sanctions" in the case of non-compliance.[105] At the national and sub-regional levels, ASEAN's governments are starting to take concrete policy measures, though whether these are actually attributable to ASEAN's initiatives is yet another debate. In the forest sector, governments in the Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA) are increasingly engaged in community-based forest management and improving recognition of indigenous use rights over traditionally managed forested areas. Much of the traditional forest management in this region, however, is historically based on slash and burn, so whether the recognition of these rights is actually playing a favorable role may be open to question. The Philippines has been a good example of legal recognition of ancestral domain claims. The latter and Indonesia have also started paying the rural poor in upland areas to protect environmental services in pilot sites.[106] Indonesia's President Yudhoyono has announced a bold target of 26 percent emission reduction by 2020 compared to business as usual and up to 41 percent with international support.[107] Singa-

[104] Ibid., p. 22.

[105] S.W. Simon, "ASEAN and the New Regional Multilateralism", in *International Relations of Asia*, Shambaugh, Yahuda (eds) cit., p. 203.

[106] Asian Development Bank, *Strengthening Sound Environmental Management in the BIMP-EAGA*, ADB Project Number: TA 6446 (REG), Technical Assistance Consultant's Report, September 2008, p. 31.

[107] Ministry of Finance and Australia Indonesia Partnership, *Ministry of Finance Green Paper. Economic and Fiscal Policy Strategies for Climate Change Mitigation in In-*

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pore has set a target of 16 percent emissions reduction from business as usual levels by 2020, and launched a $52 million cleantech park project to develop cutting-edge technologies such as stormwater recycling and solar power generation specifically tailored to the tropics, and create 20,000 'green collar' jobs by 2030.[108]

For ASEAN to be a more effective driver for air pollution management, and the environment at large, the association needs to go beyond institution building and norm setting. Member states need to first recognize that environmental management and economic growth are not mutually exclusive, and that it is in their collective and individual interest to operationalize the norms created by ASEAN's regional institutions at the national level. Climate change also poses a threat to national sovereignty with devastating multiplier effects from forced migration of environmental refugees, loss of livelihoods, spread of pandemics and deteriorating food security. Compared to this, the measure of loss of sovereignty in a more interventionist approach to environmental cooperation is marginal. ASEAN countries therefore should seriously consider the need for a more binding form of cooperation in environmental issues.

ASEAN on its part needs to focus on creating implementation tools and setting quantifiable targets instead of being content with its orbit of rhetorical guidelines, action plans and declarations. Creating monitoring mechanisms to ensure member states are meeting the targets is also important. This is where ASEAN can engage civil society to act as environmental watchdogs at the regional level. While it may be a bit premature to expect ASEAN to implement binding targets on environmental issues, creating a compliance index may be a good start for benchmarking countries in terms of certain common environmental denominators like air pollution, energy efficiency, biodiversity and waste management.

ASEAN has great potential to be a key driver for air pollution management and the environment at large, but until there is significant change in mindsets about regional cooperation as a means to protect national sovereignty, ASEAN will continue to be seen as an ineffective change agent and driver for regional management of the environment.

donesia, Ministry of Finance and Australia Indonesia Partnership, Jakarta 2009, p. 1.

Conclusion

The need for strategic change

A process of strategic change must be implemented in both the EU and the ASEAN member states to improve not only local but regional and global air quality as well. This will require:[109]

1. Strong leadership to provide vision and avoid confusion.
2. Skills: the innovation value chain must be addressed via mutually supporting actions in political leadership, research and education, and innovation-entrepreneurship-business to avoid feelings of anxiety regarding these actions.
3. Incentives: from the individual to the regional level, the "what's in it for me?" question must be addressed or the change will occur too gradually. Business as usual is no longer an option with respect to our climate and air quality. Incentives must be provided to encourage a change of habits.
4. Resources (taxes and new markets), since nothing is free, and to avoid frustration with the change process.
5. A viable action plan/strategy to ensure that no energy is wasted taking steps in the wrong direction.
6. A reconceptualization of economic growth to factor in the long-term costs and benefits of economic development and technological innovation.

By recognizing the current state of air quality in EU and ASEAN member nations and taking appropriate strategic action, significant air quality improvement can be achieved, with all the concurrent benefits to human health, the environment and society, and helping to stabilize climate change. This must be accomplished through strong regional cooperation empowered by international treaties and

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[108] J. Cheam, "20,000 'Green Collar' Jobs", in *The Straits Times*, 25 February 2010.
[109] http://www.science-society-policy.org/news/issp-news/the-need-for-nordic-synergy-from-the-knowledge-triangle-in-a-changing-global-climate/ (accessed

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local action in the private and public sectors as well as civil society.
Acknowledgements