

Manila Women's Forum

A Network of Women Professionals

June 2011

Air Pollution in Manila

By Christine Albee Purka

Half-a-million people a year die prematurely in Asia because of air pollution, while climate change threatens the well-being of everyone. Transport, industry, and biomass burning produce air pollutants and greenhouse gases. Particulate matter and ozone also contribute to climate change. It is vital to address pollution and climate change together through integrated policies and projects.

In May, MWF was pleased to host speaker Sophie Punte, the Executive Director of the Clean Air Initiative for Asian Cities (CAI-Asia). CAI-Asia is a regional non-profit organization serving to promote better policies and actions to reduce air pollution and greenhouse gas emissions in Asian cities. Poor air quality is a heightened concern for many living in Manila, and Sophie's deep knowledge and insight on the subject served to demystify, and in some cases even reassure, many attending MWF members.

What is Air Pollution and Where Does it come From?

Air pollution can consist of a number of emissions of concern, including carbon monoxide (CO), lead (Pb), ozone (O₃), methane (CH₄), sulfur

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Speaker Sophie Punte (left) with MWF member Amy Alexander (right).

JUNE MWF Meeting ■ **When:** Monday, 2011 June 20, 6:30 p.m. ■ **Where:** Sharlene Cathro's home, 17 Balete Street, South Forbes Park, Makati. ■ **What:** Coreen "Monster" Jimenez, Managing Director of Arkeofilms, will speak about her experiences in making documentaries. She recently completed a film called "Kano: An American and his Harem" and is now working on a film about Filipino overseas contract workers and one about public school education. "Kano" won a major award in the International Documentary Film Festival in Amsterdam in 2010. More information can be found at www.arkofilms.com/kano and <http://www.abs-cbnnews.com/entertainment/11/28/10/pinoy-docu-film-wins-amsterdam>

■ **Bring:** Something to share for the potluck dinner. ■ **July Meeting:** Monday, 2011 July 18.

“Project EDSA”

Everyone Deserves Safe Air

Boysen’s partnership with the Metro Manila Development Authority (MMDA)

On May 29, 2011 Rina Jimenez David wrote in The Philippine Daily Inquirer:

When I first heard about the “air cleaning” paint applied on the walls of the Guadalupe MRT Station in 2009, I greeted the news with raised eyebrows and not a small amount of skepticism. Just another marketing gimmick, I thought, grudgingly acknowledging the marketer’s adroit use of a new twist to selling paint.

But it turns out that there was more to the use of Boysen “KNOxOUT” than is immediately apparent. The painting of the Guadalupe MRT Station was meant to serve as a trial of the paint’s air cleaning quality, monitored by the Manila Observatory and the Swedish environmental project management company Conexor. “KNOxOUT,” the trial showed, “cleaned the nitrogen dioxide (a toxic gas produced from vehicle emissions) emissions of over 30,000 vehicles passing by the station every day.”

How does Boysen do it? Information materials provided by the company say that when a film of “KNOxOUT” is exposed to light, the ultrafine titanium dioxide in the paint reacts with water vapor in the air to form free radicals at the surface of the titanium dioxide. These free radicals in turn break down noxious air pollutants such as nitrogen oxides that come into contact with the surface. In effect, said the company, this made the Guadalupe MRT Station the “largest air purifier in the world.”

Taking the air cleaning project a step further, Boysen has partnered with the Metro Manila Development Authority (MMDA) on “Project EDSA (Everyone Deserves Safe Air),” billed as the “the world’s first large-scale art project using paints that can clean noxious air pollutants.” The project, launched last May 7 and curated by TAO Inc. (headed by my friend Marian Pastor Roces), consists of eight massive artworks, each measuring about 1,000 square meters in eight different locations along the 24-km-stretch of Edsa. All of the artworks will use Boysen “KNOxOUT.” (*Read the whole article here: <http://opinion.inquirer.net/5535/clean-air-and-an-auction-for-children>*)

DENR Proposes “No Exposed Soil” Policy

A June 10, 2011 press release by the Department of Environment and Natural Resources

Next to lessening smoke emissions from motor vehicles, the Department of Environment and Natural Resources (DENR) is now proposing a “no exposed soil” policy in Metro Manila’s streets as a way to reduce the level of air pollution in the metropolis.

DENR Secretary Ramon J. P. Paje bared this proposal in a letter to Metropolitan Manila Development Authority Chairman Francis Tolentino in an effort to lessen dusts coming from streets and open and bare lands that pollute the air.

Paje said that a “no exposed soil” policy, similar to those implemented in other countries, would involve cleaning up the roads through regular sweeping. It would also require additional environmental management practices particularly at construction sites like prohibiting the use of bagged cement and on-site mixing of concrete and mortar and the use of enclosures and covers to minimize dust particles from flying.

Greening or planting campaigns, including the paving of roads and other access points, would also reduce bare land where exposed soil can also be found, the secretary added.

“Kapag walang nakatanim na kahit damo man lang, nililipad sa hangin ang alikabok at nakakadagdag ito sa suspended particulates na nalalanghap natin,” he explained.

Suspended particulates refer to dust particles in the air and is the basis for determining the level of air pollution.

The environment chief said that a “no exposed soil” policy would greatly reduce air pollution and take air quality improvements to the next level.

“The sooner we act, the sooner we can enjoy the benefits of clear air not only for our health but for the environment in general,” he said.

Clean air has been a priority agenda of the government from the start of the Aquino administration and the DENR has aimed to reduce the level of air pollution in Metro Manila by 30 percent this year compared to 2009. It has since then partnered vigorously with the private sector and other government agencies to implement various air pollution control programs such as the Ligtas-Hangin campaign to rid EDSA of smoke belchers. The agency has also set stricter emission limits for all vehicles and called for a tighter watch on erring private emission testing centers.

Such efforts have contributed to a substantial decrease in levels of total suspended particulates (TSP) since December in 2010 until it spiked in March of this year, then declined again in April. Paje attributed the spike “not to smog, but due to the dryness of the summer season which aggravates the level of dust in the air.”

Data from the DENR’s Environmental Management Bureau, which monitors the country’s air quality, showed that from 133 micrograms per normal cubic meter ($\mu\text{g}/\text{ncM}$) in December 2010, the TSP levels decreased to 131 $\mu\text{g}/\text{ncM}$ in January 2011. It further went down to 120 $\mu\text{g}/\text{ncM}$ in February, before increasing by 22 percent to 140 $\mu\text{g}/\text{ncM}$ in March. However, the level once more dipped by 17 percent to 121 $\mu\text{g}/\text{ncM}$ in April.

The World Bank estimates an annual productivity loss worth P7.6 billion due to the respiratory and cardiovascular disease caused by the exposure of about 18 million Filipinos to air pollution. (denr.gov.ph)

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dioxide (SO₂), nitrogen oxide (NO_x), volatile organic compounds (VOCs), particulate matter (PM), and air toxins. The specific composition of pollutant particles found in a specific area will depend on where it is produced.

Air pollution is produced by (often unregulated) industry, construction, power plants, vehicles, open burning, cooking, as well as natural disasters such as volcanoes and forest fires. Much of Asia's air pollution travels across borders, for example, some of the air pollution produced in China is carried to Japan and Korea, and can reach as far as the United States.

How Does it Affect Us?

Pollution can cause both short and long-term health issues for many. Short-term exposure may cause sore eyes, a runny nose, coughing, difficulty in breathing, asthma attacks, acute bronchitis, and aggravation of lung and heart disease. There are also

health implications from long-term exposure, including reduced lung capacity, chronic bronchitis, lung cancer, heart diseases, and premature death. The particular concern for children living in Manila over time is permanently reduced lung capacity. One out of every 16 Filipinos suffers from asthma.

The impact of the air pollution depends on the type and source of the pollutant. The smaller the particulate matter, the deeper in the lungs it can travel, with the smallest particles able to enter the bloodstream and reach other organs. Here the content matters — particles can consist of acids (nitrates and sulfates), organic chemicals, metals, soils or dust, and allergens (pollen or mold). There can also be carcinogenic chemicals such as toluene and benzene.

Comparing Manila to Other Asian Cities

In the Philippines, road transport is

responsible for more than 70% of particulate matter (PM) emissions and 33% of CO₂ emissions. Within Manila, jeepneys and motorbikes/tricycles are the biggest sources of air pollution, which is expected to worsen with the number of registered motorbikes and tricycles growing at a rate of 10% annually. However, comparatively speaking, the news is not as grim as it may seem. Surprising for most, there are a number of "pros" at work in Metro Manila compared to many other cities in Asia:

* Few heavy industries operating within Metro Manila

* Power is mostly generated outside the city

* Incinerators are banned; leaded fuel is also banned and fuel subsidies have largely stopped

* Pollution is mostly transport related, which is not as toxic as pollution from some industrial plants, power plants, and waste incinerators

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Press Release

November 11, 2010

"Good Air Quality" ADB Rating of Metro-Manila, Testimony to Public - Private Partnership for Environmental Protection

Senator Loren Legarda said the "good air quality" rating which the city of Manila received during the pilot test of the Clean Air Scorecard of the Asian Development Bank and the Clean Air Initiatives For Asian Cities during the three day Better Air Quality Conference in Singapore may be an indication that the efforts being undertaken by the agencies of government hand in hand with private sector participation in combating air pollution is seeing fruition. "This is welcome good news. It translates to improved health conditions for the residents of Manila, particularly the marginalized sector who are most exposed to pollution."

The other cities with "good" clean air score aside from Manila are Bangkok, Hanoi, Jakarta, and Jinan.

Room Air Purifiers: What to Look For

- Filters
 - HEPA filters (99.97% removal of 0.3 um airborne pollutants)
 - Carbon filter
 - Ionizer purifiers not recommended (generate O₃) – you can have it removed
 - Do not use ozone generators
- Features
 - Size should be right for room area (larger at low speed is better)
 - Indicator when filter needs changing
 - Fan speeds
 - No need for odor removal or air quality sensors
- Brands: Blueair, Bionair, Homedics, Honeywell, others.
- Consumer Reports can also provide valuable advice on purchasing an air purifier.
- Place a disposable filter in your aircon to pre-filter larger particles (so the filters in your air purifier last longer) (3M makes one called Filtrete)
- HEPA filters can also be installed in your vehicle.
- Clean and/or change filters often.

About the Clean Air Initiative

The Clean Air Initiative for Asian Cities (CAI-Asia) promotes better air quality and livable cities by translating knowledge to policies and actions that reduce air pollution and greenhouse gas emissions in transport, energy and other sectors. CAI-Asia began in 2001 as a multi-stakeholder initiative by ADB, World Bank and USAID.

Since 2007, CAI-Asia is registered as a UN Type-II Partnership with more than 200 organizational members and 8 Country Networks. The secretariat of the Partnership is CAI-Asia Center, a non-profit organization with headquarters in Manila, Philippines and offices in Beijing, China and Delhi, India.

For more information, visit the CAI-Asia website at: www.cleanairinitiative.org or subscribe to the CAI-Asia listserv by sending a blank email to: join-cai-asia@lists.worldbank.org. Sophie Punte is the Executive Director and has kindly offered to answer additional questions at center@caiasia.org.

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* The country's geographic location is also an advantage: it is below the wind belt of pollution generated in mainland Asia, and winds blow local pollution away.

* The tropical climate and rainy season help curb pollution as hot air rises.

* Overall, the air quality in Manila is improving.

Furthermore, there are clear ways to protect oneself and family, as well as attainable goals for the Philippine government, which makes the situation more hopeful.

Ways to Protect your Family

Exercise outdoors after 11 a.m. Views of Manila in the morning often show a layer of pollution "trapped" close to the ground. This is caused by overnight transport pollution held in the cooler morning air below higher-level hotter air. Best to wait to do outdoor activities until later in the day after the warmed air rises and takes part of the pollution with it.

The worst levels are during very hot months and very cold months. Hot months like April and May are bad when there is build-up and no wind, and cold months such as November and December are bad when cooler air traps the pollution near the ground. The rainy season clears the air.

Avoid living close to busy roads. Because vehicle emissions are the greatest cause of air pollution in the Philippines, it is no surprise that high levels of air pollution are found within 500 meters of a highway or major road.

Keep windows closed at night. Given that air pollution levels are highest in the early morning, keep windows closed overnight and wait until 11 a.m. to open them.

Use HEPA filters and air purifiers for rooms and cars; HEPA filters can remove up to 99.97% of 0.3 um airborne pollutants. There are a number of room air purifiers available in local hardware stores; tips on purchasing are included below. Filters can also be placed in your aircon unit to pre-filter larger particles (and make the carbon filter in your purifier last longer), and filters/purifiers can also be installed in your vehicle.

Future for Manila

CAI-Asia, and others, are advocating for some key policy and programmatic changes which could significantly improve air quality in Philippine cities. At the moment, the biggest barrier to success is lack of political will, lack of coordination, and lack of communication. For example, the Government approved the Clear Air Act in 1999; however, currently there are only a few monitoring systems that measure PM10 (only 3 sites that are operated by academic institutions) and weak enforcement. There is also a need to implement and broadcast a meaningful air pollution index.

Other areas for government action include: stop the importation of second hand engines and improve monitoring and control of fuel quality; enforce emission testing (e.g., treat smoke belchers as strictly as vehicles driving on their code day); clamp

down on Illegal buses and improve the public transport system, especially buses; enforce agricultural and household waste burning restrictions and control construction dust; and continue improvement of parks and greenery in Manila. All these are achievable for the Philippine Government through supportive partnerships, like the one offered by CAI-Asia, and with genuine political will. ■

Manila Women's Forum

Manila Women's Forum (MWF) is a cross-cultural network for women. It provides opportunities to build friendships, talk to women of various cultures, and share information about resources. Our meetings are intended to provide intellectual stimulation and lead to personal and professional development. All women are welcome to join.

The current officers are: **Amy Alexander**, Message Board. **Julia Holz**, Treasurer, Membership and Programs. **Lisa Lumbao**, Chair. **Junie Navarro**, Message Board. **Lisa Stuart**, Message Board Moderator. **Beaulah P. Taguiwalo**, Newsletter, Website.

Cost of membership is P300 per year. Members receive a copy of the current mailing list in addition to the newsletter, which is also sent to non-members. A contribution is collected at each monthly meeting: P20 for members, and P50 for non-members. For more information about MWF, please contact Lisa Lumbao at Tel. 813-0168, or at lumbao@mozcom.com.

Visit our website – a work in progress www.geocities.com/manilawomensforum

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