10 YEARS OF PARTNERSHIP

CLEAN AIR ASIA
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This report serves as a publication on Clean Air Asia Partnership’s 10-year milestone as well as the Clean Air Asia Center’s Annual Report 2011. For the audited financial report for 2011 please visit www.cleanairasia.org.

Design and layout: Design Muscle Inc.

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December 2012
MESSAGE FROM THE EXECUTIVE DIRECTOR AND CHAIRS

What a difference a decade makes!

When the Better Air Quality (BAQ) conference was first launched in Hong Kong in 2002, no region-wide network existed to tackle the problem of dirty air in Asia.

The Clean Air Initiative for Asian Cities has since grown into Asia's premier network of experts, policy makers and practitioners that helps cities and governments to reduce air pollution and CO₂ emissions.

We return to Hong Kong for BAQ 2012 after a decade of accomplishments, a strong vision for the future and a new name, Clean Air Asia, to signify the transition from an initiative to an established and credible voice for air and climate.

The last ten years have seen real progress. Six countries established national ambient air quality standards for the first time: Bhutan, Brunei Darussalam, Cambodia, Lao PDR, Nepal and Pakistan. Several more have strengthened existing standards or expanded these with the addition of PM₂.₅, ozone and others designed to better protect health. Importantly, more than 400 Asian cities now share air pollution data with the public, demonstrating the power of transparency and understanding to motivate change.

To meet the twin challenges of air pollution and climate change, sustainable transport is now high on the agenda across Asia. Countries have adopted road maps to tighten vehicle emissions standards and lower sulfur in fuels. China now has a national initiative to improve fuel efficiency and reduce emissions from freight transport and other countries are following its example. Even as countries actively engage in the unfinished business of air pollution and health, global attention to climate change has triggered a focus on low emissions urban development.

Sophie Punte
Executive Director

Robert O’Keefe
Chair, Board of Trustees

Mary Jane Ortega
Chair, Partnership Council

We are proud that Clean Air Asia has been at the forefront of many of these developments by providing key data, cutting edge practices, and grassroots capacity building through our partnership of more than 230 organizations and eight Country Networks.

But we are not there yet. Our research shows that the air in 7 out of 10 cities in developing Asia is still unhealthy, and particulate matter, a key pollutant associated with mortality and respiratory disease remains well above World Health Organization standards and is again on the rise across Asia. With about 120,000 people moving to cities every day and private vehicles and energy use growing exponentially, more and more people will be exposed to air pollution. The challenge is now to accelerate adoption of new policies, effectively implement existing rules, and scale up proven solutions to Asia’s 1,000 cities.

This report celebrates past milestones and spells out a vision for the future in achieving better air quality and livable cities, and now, it’s all in the name, Clean Air Asia.

Here’s to an Asian region where we can all breathe more easily.
Late 1990s
No regional institution or program to tackle air pollution in Asian cities exists.

2002
The first Better Air Quality (BAQ) conference takes place in Hong Kong. Today, the biennial event is the largest gathering on air quality in Asia. It covers transport, energy, industry, and climate change.

2007
CAI-Asia is incorporated as a regional independent non-governmental entity. Cornie Huizenga is the first Executive Director. Professor Jiming Hao of Tsinghua University is elected as the first Chair of the Board of the CAI-Asia Center.

2009
Sophie Punte succeeds as the new Executive Director of the CAI-Asia Center. Robert O’Keefe of the Health Effects Institute becomes the new Chair of the Board in June 2009.

2010
CAI-Asia launches the Clean Air Portal to serve as the information hub for policy makers, practitioners, and the public on air quality, sustainable transport, energy, and climate change.

2001
The Asian Development Bank (ADB), World Bank, and USAID launches the Clean Air Initiative for Asian Cities (CAI-Asia) as Asia’s leading air quality network. CAI-Asia was part of a global Clean Air Initiative to “promote and demonstrate innovative ways to improve the air quality of Asian cities through sharing experiences and building partnerships.”

2004

2008
CAI-Asia is officially recognized by United Nations as a Type II Partnership

2011
CAI-Asia marks 10 Years of Partnership.

BAQ 2012
CAI-Asia becomes Clean Air Asia. Clean Air Asia is Asia’s premier air quality network with offices in Manila, Beijing, and Delhi, 8 Country Networks, and over 230 partnership members. These members come from various cities, national government agencies, non-government organizations, academic and research institutes, the private sector, and international development agencies and foundations.
**OUR AIM**

Clean Air Asia leads efforts to enable Asia’s 1,000+ CITIES to reduce both air pollution and CO₂ emissions, and thereby contribute to more livable and healthy cities with blue skies and a low carbon footprint. Emissions can be reduced through policies, plans, programs, and concrete measures that cover air quality, transport and industrial emissions, and energy use.

**OUR ROLE**

- Decision makers use **reliable analysis, knowledge, data and effective tools** to understand the program and identify solutions.
- Stakeholders at the city, national and regional level **cooperate better through networks and partnerships**.
- Policies and programs are in place that are **science-based, stakeholder-inclusive and effective**.

**OUR PROGRAMS**

- **Air Quality and Climate Change**
  - Develop a Road Map for Better Air Quality in Asian Cities linking air pollution with climate change
  - Establish a regional system for knowledge management and capacity building
  - Support cities in management of air pollution and greenhouse gas emissions

- **Low Emissions Urban Development**
  - Mainstream low emissions transport strategies in policy and investment decisions
  - Improve knowledge management and exchange on land use, transport, and energy
  - Bring walkability higher on the development agenda of cities, governments, and development agencies

- **Clean Fuels and Vehicles**
  - Facilitate adoption of tighter standards for cleaner fuels and vehicles by Asian countries
  - Strengthen policy frameworks for effective management of in-use vehicles
  - Introduce clean fleet management programs for public and private fleet operators

- **Green Freight and Logistics**
  - Establish regional and national green freight programs or initiatives
  - Mobilize a Green Freight Asia Network of private sector companies and associations
  - Improve knowledge and data on the road freight sector to inform policies, programs, or initiatives

Clean Air Asia will report the progress of status and trends in an annual publication for each of the four programs.
Establishing a regional air quality network in Asia

Air pollution in Asian cities was ten years ago and remains today a serious public health issue. Yet, during the late nineties, while several universities and NGOs were working to improve air quality, little coordination existed among them. Clean Air Asia used workshops, joint research projects, and e-groups to build the largest network on air quality in Asia in a span of ten years. Through this network, Clean Air Asia continues to convene stakeholders and shape and influence policies on management of air quality and CO₂ emissions in Asian cities.

A 2001 workshop in Hong Kong in partnership with the Environmental Protection Bureau and Hong Kong Polytechnic University inspired the creation of the Better Air Quality (BAQ) conferences. BAQ has become the main event on air quality in Asia, covering transport, energy, industry, and climate change. Policy makers and leading experts meet at BAQ to network, learn, and share experiences. Past BAQs have proven to influence policies, initiate new projects, and establish partnerships.

Clean Air Asia manages the Clean Air and Blue Skies for Asia exchange program with support from Fredskorpset Norway. The program covers six countries: Hong Kong, Indonesia, Nepal, Philippines, Sri Lanka, and Vietnam. Young professionals and civil servants are posted in partner organizations to gain practical skills in air quality management. The 28 exchanges spanning five years since 2008 have resulted in improved country programs on air quality and long-term collaboration between partner organizations.
Lean Air Asia was the first organization to show that air quality in Asian cities had improved since the 1990s. Nitrogen dioxide (NO₂) and sulfur dioxide (SO₂) levels in most cities now fall within the World Health Organization’s guidelines. Particulate matter, a key air pollutant responsible for thousands of excess deaths and increased illness across Asia, remains a significant problem.

In 2003, air quality data was collected for few cities in Asia. Today, data for almost 400 cities in 22 countries is available. The online CitiesACT database (www.citiesact.org) provides access to data and indicators for Air quality. Climate change, Transport and energy from Asian cities and countries. It serves as the main source for Asia data of the WHO’s Global Outdoor Air Pollution in Cities database.

To further support Asian governments, National Clean Air Management Profiles are published regularly. The Clean Air Portal (www.cleanairasia.org) is the prime source for policies, news, case studies, organizations, events, and other information to manage air pollution and CO₂ emissions.

### Ambient Air Quality in 310 Asian Cities in 2010

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<th>Year</th>
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World Health Organization

Air Quality Guideline (Annual)

Air Quality Guideline (Daily)

### Linking government and cities in China

Lean Air Asia has sown the seeds of a clean air network in China. Together with the Ministry of Environmental Protection (MEP), we established a China AQM City Network of 13 provincial capitals. Since 2005, city workshops bring together MEP, Environmental Protection Bureaus, Vehicle Emission Centers, and national and international experts and organizations.

This platform supports better air quality management; cities can learn from one another and from international experiences, provide input into national policies, and improve collaboration among local government agencies within each city.

A similar approach is applied in support of the State Council directive on regional air quality management for nine urban clusters, often led by provincial capitals. In the run-up to the World EXPO 2010 in Shanghai, clean air workshops in provinces and cities in the Yangtze River Delta resulted in the Yangtze River Delta Clean Air Forum. In the Pearl River Delta, such a forum is being established to support the implementation of the Pearl River Delta Air Quality Management Plan.
Clean Air Asia saw the need to complement the top-down approach of working with national government and organizations with a bottom-up approach of raising awareness and building the capacity of cities and local organizations to manage air quality, including the link to managing CO₂ emissions.

The Clean Air Scorecard is an objective and comprehensive tool to assess air quality management status in cities and identify areas for improvement. It incorporates air quality levels, clean air management capacity and clean air policies and actions.

The scorecard has been applied to nine cities in Asia in cooperation with local organizations. Subsequently, cities are assisted to address priority air quality and climate concerns. Kathmandu and Colombo chose to conduct comparative studies on indoor and outdoor air pollution with results feeding into action plans. The cities of Jinan and Hangzhou (China) and Quetta (Pakistan) used the scorecard results to formulate city clean air reports and clean air action plans. Cities of Cagayan de Oro and Iloilo (Philippines) were supported in developing emission inventories and science-based clean air plans together with experts and local stakeholders.

Clean Air Asia’s Sustainable Urban Mobility in Asia (SUMA) program from 2006 to 2009 helped shape the thinking on the role of transport in urban development and air quality management in cities. The program played a part in establishing the Sustainable Transport Initiative within the Asian Development Bank. Sustainable transport is now central to development banks’ assistance to Asian countries.

The SUMA partners have become leaders in sustainable transport in Asia. Clean Air Asia has continued to focus on areas in sustainable transport that risked falling through the cracks: walkability, green freight, two and three-wheelers, vehicle inspection and maintenance, and emissions from transport and its relationship with urban development.

Achievements of the Sustainable Urban Mobility in Asia program

- Trained Chinese and Indian trainers to deliver three newly developed courses on mass rapid transit, non-motorized transport and transport demand management
- Assisted the Indian cities of Ahmedabad to develop a bus rapid transit (BRT) system (winner of the Sustainable Transport Award in 2009), Indore to improve its bus system, and Pune and Nanded with a bicycle sharing scheme and cycling tracks
- Developed guidelines on cycling-inclusive planning, two- and three-wheelers, and social impact assessment of public transport projects
- Researched e-bikes in China, Vietnam and India, and surveyed sustainable transport developments in Indian cities
- Developed national sustainable transport strategies in the Philippines
- Increased knowledge on air pollution and CO₂ emissions and integration in government policies and plans
Expanding cities in Asia need tools that can aid in rapid but robust assessment of the impacts of land use planning, or the lack thereof, on urban energy use and emissions. The Rapid Assessment of City Emissions (RACE) tool was developed by the Clean Air Asia, Chreod, and the Asian Development Bank, to address this need.

The RACE tool estimates emissions from energy use for transportation and buildings under different future scenario. Consequently, the potential to reduce emissions can be calculated brought about by measures such as compact development, green buildings, use of renewable energy, public transport systems, and infrastructure for walking and cycling. Results are visualized in GIS maps for effective communication with mayors and other decision makers.

Significant emissions reduction potential exist for pilot cities: Ho Chi Minh, Ahmedabad and Colombo. Ho Chi Minh City is already using the results to improve its urban development master plan. Development banks and agencies can use the RACE Tool to develop loans that go beyond projects and that consider the citywide implications, including emissions growth, of their investments.

Understanding the emission impacts of policies that affect air pollution and CO₂ levels is critical to cost effective and health-based decision making. To meet this need, Clean Air Asia together with the Institute for Transportation and Development Policy and other partners developed the Excel-based tool, Transport Emissions Evaluation Models for Projects (TEEMP). TEEMP is used to estimate CO₂ and air pollutant impacts of different transport projects and policies: roads, railway, bus rapid transit systems, metro, bikeways, bike sharing, walkability improvements, road pricing, and eco-driving.

Originally developed for the Asian Development Bank, TEEMP was further modified and extended for Global Environment Facility funded projects and tested on World Bank projects. A TEEMP-City tool was created for transport systems comprising multiple projects and policies. The application of TEEMP and TEEMP-City tools are expanding worldwide.

Using a visioning-backcasting approach, Clean Air Asia forecasted transport emissions from 2005 to 2050 for six ASEAN countries and identified avoid-shift-improve policies to bring down emissions. With the support of national experts and in cooperation with transport ministries, long-term policies are now developed for ASEAN and each country.
Clean Air Asia showed how walking conditions have worsened in Asian cities. The survey covered infrastructure, policies, and pedestrian perceptions. Seven cities were rated as “walk at your own risk” and 13 cities as being “tolerant” of pedestrians. Only one city, Hong Kong, was considered a walkable city.

The survey provided high quality data documenting the pedestrian experience to facilitate informed decisions by government urban planners, which was the case for six Indian cities. The officials were encouraged to work together to improve walkability. This is combined with training cities on Complete Streets: streets that are designed to consider all road users, including pedestrians. Clean Air Asia actively supported its partners in organizing Car Free Days in Jakarta and Pasig (in Metro Manila). Other cities in Asia are expected to follow.

Clean Air Asia with Shakti Foundation and other partners launched a walkability website combined with a media campaign that started in India to capture experiences and encourage other cities to take action to improve walkability. Asia’s first Google app on walkability was developed for mobile users to report on the walkability of a street and share results on social networks.

www.walkabilityasia.org

Walkability Scores Out of 100

Walk at your own risk

- Chennai 40
- Surat 42
- Indore 43
- Bangalore 44
- Jakarta 45
- Katmandu 47
- Karachi 48

Pedestrians tolerated

- Bhubaneshwar 50
- Rajkot 53
- Pune 54
- Male 56
- Lanzhou 57
- Hanoi 57
- Colombo 58
- Kota 59
- Cebu 59
- Ho Chi Minh City 60
- Davao 60
- Ulaanbatar 62
- Metro Manila 64

Pedestrian friendly

- Hong Kong 70

How Walkable are Asian Cities?

- If walking facilities were not improved, 82% of respondents said they would shift to other transport modes.
- Walkability is best around commercial areas in cities (61 points out of 100). Surprisingly, it is lowest around public transport terminals (54 points).
- Facilities for persons with disability scored lowest (39 points) among the parameters that were rated.
- Less than half (49%) of the respondents were willing to walk to pedestrian crossings less than 50 meters away. Fewer respondents (36%) would walk to crossings that were within 50 meters to 100 meters. Only 15% would walk to crossings more than 100 meters away.
Road maps to achieve clean fuels and vehicles are essential tools for both government and industry decision makers. In 2008, Clean Air Asia launched the Road Map for Cleaner Fuels and Vehicles that was drafted together with key stakeholders - oil companies, car manufacturers, government agencies, development agencies, NGOs, and international experts - to ensure transparency and maximum representation.

As strategic partner of UNEP’s Partnership for Clean Fuels and Vehicles, we use the Road Map to help Asian countries strengthen national standards. Facilitated workshops with government agencies, oil companies, vehicle manufacturers and other institutions, so far resulted in an agreed timeline for introducing Euro 4 compliant fuel and vehicles by 2016 in the Philippines, and for Vietnam in 2016 for fuels and 2017 for light duty vehicles, emphasizing sulfur reductions.

Together with the Global Fuel Economy Initiative, we established an Asia baseline on fuel economy standards and policies and formed a network of governments and experts to develop harmonized fuel economy standards across ASEAN.

**Road Map for Cleaner Fuels and Vehicles recommendations**

- Clean fuels are essential
- A systems approach is essential
- Fuel quality and vehicle emission standards should be regulated together
- Reducing sulfur is essential
- The benefits of reducing sulfur are clear
- Cleaner fuels are cost-effective
- Current refinery expansion creates a window of opportunity
- There are no technical obstacles to produce cleaner fuels in Asia
- Enhancing octane needs careful consideration
- Taxing policy and other incentives are effective
- Fuel adulteration must be prevented
- All stakeholders should be involved in making decisions
- It is important to raise awareness about air pollution and vehicle emissions

**Initiating green freight programs and partnerships in Asia**

Clean Air Asia brought green freight on the policy and development agenda in Asia to help improve fuel efficiency and reduce air pollutant and CO₂ emissions.

A small trucks technology pilot project in Guangzhou with the World Bank triggered the development of a multi-million dollar GEF green trucks demonstration project in Guangdong Province and a national program. The China Green Freight Initiative, which builds on the US SmartWay Program, was launched by the Ministry of Transport and China Road Transport Association in April 2012.

Clean Air Asia also supports the establishment of national green freight programs other countries such as India, Indonesia, Korea, Thailand, and Vietnam. The Green Trucks Toolkit helps trucking companies reduce their fuel consumption and emissions.
Clean Air Asia beyond 2012

Air Quality and Climate Change Program

Low Emissions Urban Development Program

Clean Fuels and Vehicles Program

Green Freight and Logistics Program
The Problem

People in seven out of ten cities in developing Asian countries breathe air that is dangerous to their health. Urban air pollution kills over 800,000 people in Asia prematurely every year. Several air pollutants, including black carbon (a component of particulate matter or soot), methane, and tropospheric ozone, contribute to climate change. However, governments are still struggling to address air pollution.

### Goals 2016 for Asia

**Goal 1.**
Asian countries adopt National Ambient Air Quality Standards for PM$_{10}$ and PM$_{2.5}$ in line with World Health Organization Interim Target 1 for daily and annual levels.

**Goal 2.**
Asian cities of more than 1 million people have air quality monitoring systems covering at least PM$_{10}$, PM$_{2.5}$, NO$_{2}$, and SO$_{2}$ and report data publicly every day.

**Goal 3.**
Asian cities of more than 1 million people have Clean Air Plans with progress reported in annual reports.

### Clean Air Asia’s Role

Our Air Quality and Climate Change Program consist of three components:

1. **Develop a road map for better air quality in Asian cities.**

Clean Air Asia will prepare the road map together with key environmental and health expert organizations and development agencies. It will be endorsed by Asia’s environment ministries through the Governmental Meetings on Urban Air Quality in Asia, which Clean Air Asia co-organizes with UNEP. The Road Map will help strengthen and mainstream the management of air pollution and greenhouse gas emissions across government policies and institutions. The Road Map will cover five key areas:

- Setting and strengthening national ambient air quality standards
- Air quality monitoring and emission inventories
- Health impacts and their social and economic cost
- Clean air plans, policies, and measures (assessing cost-effectiveness and co-benefits)
- Communicating air quality information.

### Ambient Air Quality in 310 Asian Cities

<table>
<thead>
<tr>
<th>Annual average particulate matter concentration (PM$_{10}$ in µg/m$^3$)</th>
<th>Number of Cities</th>
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<td>300</td>
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<td>250</td>
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- WHO Interim Target 1, 70µg/m$^3$
- WHO Interim Target 2, 50µg/m$^3$
- WHO Interim Target 3, 30µg/m$^3$
- World Health Organization Air Quality Guideline, 20µg/m$^3$
2. **Set up a regional system for knowledge management and capacity building on air quality and greenhouse gas management.**

In partnership with universities, research institutes, and NGOs, Clean Air Asia will create a regional system to support Asian governments and cities in managing air pollution and greenhouse gas emissions. Working with our partners, we will design knowledge management and capacity building mechanisms that will meet the needs of ministries and cities and that will match the expertise of different partners. Our aim is to move beyond isolated training courses and workshops and to make better use of other methods such as city-twinning, city networks, webinars, study tours, and exchange programs.

3. **Support cities on air pollution and greenhouse gas management.**

Clean Air Asia will assess cities’ strengths, weaknesses, and needs using the Clean Air Scorecard. The scorecard also provides the basis for developing a Clean Air Report, a Clean Air Action Plan, and implementing policies and measures. Our partners provide expertise and help build the capacity of local organizations that can take the lead in the future. Existing or new city networks are instrumental in city-to-city exchange and scaling up best practices.

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**National Ambient Air Quality Standard for Annual Average Particulate Matter Concentrations**

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<th>PM(_{10}) Daily</th>
<th>AQG (50 µg/m(^3))</th>
<th>IT-3 (75 µg/m(^3))</th>
<th>IT-2 (100 µg/m(^3))</th>
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<th>PM(_{10}) Annual</th>
<th>AQG (20 µg/m(^3))</th>
<th>IT-3 (30 µg/m(^3))</th>
<th>IT-2 (50 µg/m(^3))</th>
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The Problem

Asia is urbanizing fast. In China alone, 350 million people will be added to existing and new cities in the next two decades. This figure is more than the entire US population. As a result, vehicle numbers, energy use, and emissions are rising steadily. Rapid motorization combined with poor urban and transport planning have reduced the use of public transport, walking, and cycling. To decouple emissions increase with urban growth, we need better urban planning that integrates land use with systems for sustainable transport and clean energy, combined with policies and measures to reduce air pollution and greenhouse gas emissions from all sources.

Goals 2016 for Asia

Goal 1.
Asian countries adopt “avoid-shift-improve” transport strategies that support low emissions urban development.

Avoid-Shift-Improve Measures of Selected Asian Countries

<table>
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<tr>
<th>Measure</th>
<th>Brunei</th>
<th>Cambodia</th>
<th>China</th>
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<td>Promotion of non-motorized transport</td>
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<td>Transit-oriented development initiatives</td>
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<td>Subsidy for public transport</td>
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*Avoid:* Reduce or avoid the need to travel  
*Shift:* Shift to maintain share of more environmentally friendly modes  
*Improve:* Improve the energy efficiency of transport modes and vehicle technology
Goal 2.
Asian countries and cities of more than 1 million people issue regular reports on key air pollution and greenhouse gas emission indicators for transport and energy.

Goal 3.
Asian cities of more than 1 million maintain or improve the 2000-2010 percentage share of trips by non-motorized and public transport.

Clean Air Asia’s Role

Our Low Emissions Urban Development Program consists of three components:

1. Mainstream low emissions transport strategies in policy and investment decisions.

A wide range of “avoid-shift-improve” strategies can lead to low emissions transport systems. Future transport emissions for Asian countries and cities and reduction strategies were determined with various emissions tools. Building on these efforts, Clean Air Asia will support national and city governments to integrate these strategies into policy and investment decisions and in urban master plans.

2. Improve knowledge management and exchange on land use, transport, and energy.

Clean Air Asia will establish an exchange platform for land use and transport together with development agencies, governments, and other partners. To support this, we will continue to collect the data that underpin air pollution and greenhouse gas emissions indicators for transport and energy in Asian countries and cities. We will develop land use indicators, such as availability of green space, kilometer sidewalks and bike lanes, and percentage of mixed land use in cities.

3. Put walkability higher on the agenda of cities, governments, and development agencies.

Clean Air Asia will continue to work with city mayors to introduce Car Free Days in one or more streets in cities across Asia to create awareness about the need for urban space for people, better pedestrian facilities, and the importance of walking and cycling to lessen air pollution and greenhouse gas emissions. This will be supplemented with surveys and awareness-raising activities on the state of walkability in Asian cities. We will also work with government and development banks to increase investments and improve policies for walking and cycling.

If walking conditions do not improve, will you shift to other transport modes?

- 68% will shift to motorized transport
- 13.5% will shift to a bicycle
- 18.5% will not shift
The Problem

The vehicle population in Asia will exceed one billion in 2035. Fuel consumption and resulting CO₂ emissions will grow by 400% compared to 2005. The achievements in curbing particulate emissions will be offset by vehicle growth. The World Health Organization confirmed that diesel emissions cause lung cancer. Asia needs tighter vehicle emission and fuel quality standards that go beyond light-duty vehicles, and that are supplemented with fuel economy standards, policies and programs for in-use vehicles and vehicle fleets. These efforts should especially focus on reducing diesel emissions.

Goals 2016 for Asia

Goal 1.
Asian countries have Euro 4 or equivalent emission standards for light and heavy duty vehicles or have approved their introduction within four years.

2012 Asian Light-duty Vehicle Emission Standards

Note: The cities of Delhi, Mumbai, Kolkata, Chennai, Bangalore, Hyderabad, Secunderabad, Sholapur, Ahmedabad, Pune, Surat, Kanpur, and Agra in India are in Euro 4. The cities of Beijing, Guangdong, and Shanghai in China have Euro 4 standards.

2012 Fuel Sulphur Levels

Note: The cities of Delhi, Mumbai, Kolkata, Chennai, Bangalore, Hyderabad, Secunderabad, Sholapur, Ahmedabad, Pune, Surat, Kanpur, and Agra in India are at 50ppm. Major cities like Beijing, Shanghai, Chengdu, and the Pearl River Delta cities and the province of Guangdong are at 50ppm. 2,000ppm Sulfur in fuel available in DKI Jakarta.
Clean Air Asia’s Role

Our Clean Fuels and Vehicles Program consist of three components:

1. **Facilitate the adoption of tighter standards for cleaner fuels and vehicles by Asian countries.**

   Clean Air Asia works with national governments, industry, and other stakeholders to agree on the introduction of tighter vehicle emission standards and fuels with 50 ppm sulfur or less with a clear timeline. Similar policy dialogues will be held on fuel economy standards and on alternative fuels and vehicles. We will bring together governments, partners, and experts from different countries to share experiences with the aim to fast-track and harmonize standards across Asia.

2. **Strengthen policy frameworks for effective management of in-use vehicles.**

   Starting with a database on in-use vehicles in Asia, we will work with governments to improve vehicle inspection and maintenance systems, to restrict the import and sales of polluting second-hand vehicles and engines, and to phase out polluting vehicles. Specifically, policies and financing mechanisms will be established to phase-out old, polluting 2-stroke three-wheelers and replace them with 4-stroke three-wheelers, electric three-wheelers, or three-wheelers converted to LPG fuel.

3. **Introduce clean fleet management programs for public and private fleet operators.**

   Building on the Clean Fleet Management Toolkit of UNEP and TNT, Clean Air Asia developed tailored toolkits for bus fleets and truck fleets. Depending on what is most suitable for each country, a Clean Fleet Management program will be established nationally for bus, truck, corporate, government and other fleets. We will support the design and establishment of such programs and build partner networks to roll these out.

**Goal 2.**
Asian countries have fuel economy standards for light and heavy duty vehicles or have approved their introduction within four years.

**Goal 3.**
Asian countries have effective programs for in-use vehicles including inspection and maintenance, phase out of polluting vehicles, and Clean Fleet Management.

**2012 Asian Fuel Economy Standards**

- **Fuel economy standard exists**
- **Fuel economy standard proposed/under discussion**
- **No fuel economy standard**
The Problem

Freight now accounts for 35% of the world’s transport energy use, and it is growing more rapidly than passenger transportation. In Asia, freight movement is expected to grow from 1 billion to 8 billion ton-kms between 2000 and 2050. Trucks make up as little as 5% of national vehicle populations, yet they generate around 60% of transport emissions. Most countries do not have effective national programs or policies, financing mechanisms, data, and standard methodologies to support the private sector in improving fuel efficiency and reducing emission intensity across the supply chain. As the freight sector is highly fragmented and covers multiple modes, governments and the private sector need to collaborate nationally and regionally.

Goals 2016 for Asia

Goal 1.
Asian countries have a national green freight initiative or are part of a similar multi-country initiative that actively engage government and the private sector.

Green freight initiatives in Asia
Goal 2.
Asian countries and cities of more than 1 million collect and regularly report key freight data.

Clean Air Asia’s Role

Our Green Freight and Logistics Program consists of three components:

1. **Set up regional and national green freight programs or initiatives.**

   We will continue to support China in the implementation of the China Green Freight Initiative while working with other governments to establish similar national green freight programs. Support to gain traction for a national program can take the form of pilot projects, national green freight seminars, study tours, policy briefs, and advisory groups with representatives from different government agencies. Regional coordination among governments and the private sector will ensure program consistency in Asia and with programs in the US and Europe.

2. **Mobilize a Green Freight Asia Network (GFAN) of private sector companies and associations.**

   GFAN will be developed as the main private sector partner for national initiatives on green freight. It will be the Asian equivalent of US SmartWay and Green Freight Europe. Through working groups with GFAN members, we will work on developing the network and expanding its membership; methodologies and tools for CO₂ measurement and reporting; public and private stakeholder engagement; and a platform on technologies, capacity building, and financing solutions.

3. **Improve knowledge and data on the road freight sector to inform policies, programs, or initiatives.**

   To build confidence in green freight technologies and strategies, pilot projects on clean technologies (making use of the Green Trucks Toolkit) and urban freight will be initiated in various countries. In support of the Environmentally Sustainable Transport Forum, a set of green freight indicators will be established, as well as a database and processes to collect and report data by different Asian countries. We will continue with research studies, website (www.greenfreightandlogistics.org), news digests, and other forms of communication to increase awareness and knowledge.

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Goal 3.
Clean truck technologies are available and demonstrated across Asia.
OUR ORGANIZATION

The Clean Air Asia Center has offices in Manila, Philippines; Beijing, China; and Delhi, India and is headed by Sophie Punte (Executive Director) and Glynda Bathan-Baterina (Deputy Executive Director).

The team works closely with the Country Network Coordinators, Advisors, Clean Air Asia Partnership, and Board of Trustees.

Country Networks

- **Clean Air Asia Center**: The Clean Air Asia Center has offices in Manila, Philippines; Beijing, China; and Delhi, India and is headed by Sophie Punte (Executive Director) and Glynda Bathan-Baterina (Deputy Executive Director).

- **Clean Air Asia Center**: The Clean Air Asia Center has offices in Manila, Philippines; Beijing, China; and Delhi, India and is headed by Sophie Punte (Executive Director) and Glynda Bathan-Baterina (Deputy Executive Director).

- **Country Networks**: The Pakistan Clean Air Network was established in 2005 to address air quality issues in urban centers by providing a broad multi-stakeholder knowledge base for air quality management. The Secretariat is hosted by the International Union for Conservation of Nature (IUCN).

- **Country Networks**: The Partnership for Clean Air promotes air quality management as a multi-stakeholder effort in the Philippines. It was established in 2001 and was incorporated as a NGO in 2003. The Secretariat is co-located with Clean Air Asia’s head office.

- **Country Networks**: The Clean Air Sri Lanka was established in 2004 as a non-profit organization that supports air quality management programs of the Government of Sri Lanka, especially the Vehicle Emission Testing Program. The Secretariat is hosted by AirMAC.

- **Country Networks**: The Vietnam Clean Air Partnership was established in 2006 to mobilize individuals and social organizations to participate in activities that improve air quality, protect public health, and promote the country’s sustainable development. The Secretariat is hosted by the Vietnam Association for Conservation of Natural Resources and Environment (VACNE).
Board of Trustees

Chair: Robert O’Keefe
is the Vice President of the Health Effects Institute leading international programs on health effects of air pollution in developing countries. He served for a decade as a state environmental regulator and is a member of the US EPA’s national Clean Air Act Advisory Committee.

Vice-Chair: Cornie Huizenga
was instrumental in establishing Clean Air Asia as an independent organization and was its first Executive Director until December 2008. Currently, he is the convener of the Partnership on Sustainable Low Carbon Transport.

Treasurer: Francis Estrada
is a prominent international investment banker, specializing in Asia-related financial operations, and has set up financial institutions all over the world. He was Chair of the La Salle University of the Philippines and President and CEO of the Asian Institute of Management.

Mary Jane Ortega
is the current elected Secretary-General of the Regional Network of Local Authorities for the Management of Human Settlements – CITYNET. She served as the Mayor of San Fernando City of the Province of La Union, Philippines from 1998 to 2007.

David Guerrero
is Chair and Chief Creative Officer of the BBDO Guerrero/Proximity Philippines. The agency was ranked in the top three in Asia Pacific at the Spikes Asia Festival 2012. He has been active in air quality issues for the past decade.

Dr. Shreekant Gupta
is Associate Professor at the Delhi School of Economics, University of Delhi and adjunct faculty at the Lee Kuan Yew School of Public Policy, National University of Singapore. He was Director of the National Institute of Urban Affairs at New Delhi, India.

Prof. He Kebin
is Deputy Dean at Tsinghua University Graduate School and Professor at the Department of Environmental Science and Engineering. He specializes in energy use and sits on various committees to advice government on air quality and emissions management.

Sophie Punte
is the Executive Director of Clean Air Asia since 2009 and has developed the organization into Asia’s leading network on air quality and climate change. She previously led an energy and climate program at UNEP and was senior manager with accounting firm KPMG.

Partnership Council

- Cities: Mary Jane Ortega, CITYNET (Chair), Mayor Ir. H. Eddy Santana Putra, Palembang City, Indonesia
- National government agencies: Elly Sinaga, Ministry of Transport, Indonesia
- Non-government organizations: Wing-tat Hung, Conservancy Association, Hong Kong

- Private Sector: Klaus Burger, MAHA Maschinenbau Haldenwang & CO., KG, Germany
- Development agencies and foundations: Roland Haas of GIZ Germany, Choudhury Rudra Charan Mohanty, United Nations Centre for Regional Development (UNCRD)
Clean Air Asia Center Members

Private sector companies and associations support Clean Air Asia's mission by becoming members that provide $20,000 or more per year.

Clean Air Asia Partnership Members

Members of the Clean Air Asia Partnership include cities, government, non-government organizations, academic and research institutes, private sector, development agencies and foundations who support with project implementation and joint campaigns related to air quality and climate change in Asia.

ABS-CBN Foundation, Philippines • Aditya Environmental Services Pvt. Ltd., India • Aga Khan Planning and Building Service, Pakistan • Air & Waste Management Association, USA • Air and Waste Management Association, Philippines • Amazing Life Club, China • Andhra Pradesh Pollution Control Board, India • Asia Pacific Roundtable for Sustainable Consumption and Production • Clean Air Asia Center • Asian Development Bank • Asian Institute of Technology, Thailand • Association of Road Users of Pakistan • Auto & Travel Magazine, Pakistan • Automotive Research Association of India • Bangkok, Thailand • Bangladesh University of Engineering and Technology • BIOCORE, UK • Bombay Environmental Action Group, India • Cagayan de Oro, Philippines • Cambridge Environmental Research Consultants Ltd, UK • Campbridge Paints, Inc., Philippines • Cascade Sierra Solutions, USA • Cebu, Philippines • Center for Human Development, Bangladesh • Center for Transportation and Logistics Studies, Gadjah Mada University • Central Pollution Control Board, India • Central Road Research Institute, India • Centre for Environmental Research and Development Initiatives (CERDI-Bangladesh) • Centre for Regional and Urban Studies, Indonesia • Centre for Science and Environment, India • Centre for Studies in Science Policy, Jawaharlal Nehru University, India • Changsha, China • Chemical Engineering Department, Mehran University of Engineering & Technology, Pakistan • Chengdu, China • Chiang Mai, Thailand • China Sustainable Energy Program, Energy Foundation • Chinese Research Academy for Environmental Sciences • Chittagong City Corporation, Bangladesh • Chongqing NGV Engineering & Technology, China • Chongqing, China • City District Government Lahore, Pakistan • City Managers Association Orissa, India • Civic Exchange, Hong Kong • Clean Air Sri Lanka • Clean Emission Appreciation Forum, Indonesia • Clean Energy Nepal • Cleaner Production Institute, Pakistan • Cole & Associates Inc., USA • Colombo, Sri Lanka • Conservancy Association, Hong Kong • CONSERVE, India • Corning Inc. • Danang, Vietnam • Department of Energy, Philippines • Department of Environment and Natural Resources, Philippines • Department of Environment Malaysia • Department of Environment, Afghanistan • Department of Environment, Bangladesh • Department of Environmental Science, School of Science and Engineering, Ateneo de Manila University • Department of Forest Ecology and Environment, India • Department of Transportation and Communications, Philippines • Dhaka City Corporation, Bangladesh • Dhaka Transport Coordination Board • Ecogreen Company Ltd, Pakistan • Ecotech Pvt Ltd, Australia • ENVIRON INDIA • Environment Action Association, Korea • Environment and Public Health Organization, Nepal • Environmental Management Bureau, Ministry of the Environment, Japan • Environment and Protection Agency, Government of Balochistan, Pakistan • Environmental Protection Agency, Maldives • Environmental Protection Department of Hong Kong • Envirosolutions & Consulting Ltd, Singapore • European Federation for Transport and Environment • Faculty of Civil and Environmental Engineering, Institute of Technology Bandung • Faculty of Public Health, University of Indonesia • Firefly Brigade, Philippines • Fuel and Lubes Asia Inc. • German International Cooperation GIZ • Global Change Impact Studies Centre, Pakistan • Green Fuel Technologies Ltd, Pakistan • Green Plus AsiaTech Ltd, Singapore • Guangzhou, China • Guying, China • H&B Corporation, Philippines • Hapjung, Vietnam • Hanzhong, China • Hanoi, Vietnam • Harbin, China • Health Effects Institute, USA • Ho Chi Minh City College for Natural Resources and Environment • Ho Chi Minh City Environmental Protection Agency • Ho Chi Minh City, Vietnam • Human Welfare and Environment Protection Center, Nepal • Hydrocarbon Development Institute of Pakistan • Institute of Meteorology, Pakistan • Indian Institute of Technology Kanpur • Indonesia Transport Society MITI, Indonesia • Indonesian Cleaner Production Centre • Institute for Environment and Resources CEFINEA, Indonesia • Institute of Environmental Medicine, Seoul National University • Institute of Environmental Science and Engineering, Tsinghua University • Institute of Process Engineering and Power Plant Technology (IVD), Universitats Stiftung • Integer Research Ltd, UK • Integrated Development Association, Sri Lanka • Intermediate Technology Development Group South Asia, Sri Lanka • International Forum for Rural Transport and Development, Sri Lanka • International Motor Vehicle Inspection Committee (CITA) • IRSTE Ltd, Pakistan • Islamabad Capital Development Authority, Pakistan • IUCN International Union for Conservation of Nature • Janak Women Awareness Society, Nepal • Jinan, China • Joint Committee for Ledased Gasoline KPPB, Indonesia • Kathmandu Metropolitan City, Nepal • Korea Carbon Consulting • Lanzhou, China • Lipa, Philippines • Local Governance Network, India • Lucyang, China • MAHA Maschinenbau Haldenwang GmbH & Co. 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Ltd, Korea • Ulaanbaatar, Mongolia • United Nations Centre for Regional Development • Universiti Malaysia Terengganu • University of Karachi, Pakistan • University of Science Malaysia • Urban Development Institute Foundation, Thailand • Urban Sector Policy and Management Unit, Pakistan • Urumji, China • US Agency for International Development • US Environmental Protection Agency • Vidyanyagar Nature Club, India • Vietnam National University of Ho Chi Minh City • Vietnam Register • VITO, Belgium • Wrie Universteits Brussel • VSBI/CESSP Project, Nepal • World Bank • Zeeruk International Ltd, Pakistan
“Clean Air Asia and BAQ conferences provide an excellent platform that enables policymakers to put together a proper policy mix to tackle air pollution in cities like Bangkok.”

Dr. Supat Wangwongwatana
Former Chair of Clean Air Asia and Former Director General of the Pollution Control Department of Thailand

“Clean Air Asia truly makes a difference in advancing clean air programs in Asia. We are proud to be a member and admire their collaborative approach to solving Asia’s mobile emissions challenges.”

Tom Lynch
Regional Director Asia
Corning Environmental Products Division

“Clean Air Asia has established itself as a critically important force for clean air in Asia, bringing together key experts and policymakers to solve common problems. Perhaps the capstone is the BAQ Conference which has become THE meeting on clean air in Asia that cannot be missed.”

Michael P. Walsh
International Expert

“Clean Air Asia understands the importance of professionalism, learning, sharing and the value of relations in moving forward. We are honored to be a partner in supporting their collaborative exchange of their partnership members.”

Nita Kapoor
Director General
FK Norway / Fredskorpset

“Clean Air Asia pioneers in addressing air pollution at the Chinese city level and advances professional policies, regulations and measures with regards to city air quality management drawing upon existing effective measures in the Chinese cities and integrating international good practices.”

Ren Hongyan
Deputy Director
General, Appraisal Center of Environmental Impact Assessment, Ministry of Environmental Protection - China

“ACFA has been a close working partner and member of Clean Air Asia for the past decade. Together, we have evolved and seen significant success. The development of the authoritative Clean Fuels Road Map and positive outcomes on fuel quality improvements in many Asian countries stand out in particular. Most important of all, our partnership has brought together interested parties to commit to a great cause.”

Clarence Woo
Executive Director
Asian Clean Fuels Association

“The US EPA, through its air program, has enjoyed years of successful collaboration with Clean Air Asia. From the piloting of SmartWay green freight technologies in Guangzhou to the development of a national China Green Freight Initiative, Clean Air Asia and EPA have been able partners, providing leadership and expertise to ensure the success of these important projects. We look forward to building upon our positive relationship to achieve our shared goals of protecting human health and the environment.”

Christopher Grundler
Acting Office Director, Office of Transportation and Air Quality, Office of Air and Radiation
US Environmental Protection Agency

“As a founding partner of Clean Air Asia, the World Bank is very pleased to see its continued evolution into an organization that provide strong knowledge and advice on air pollution in Asia. It is a good model of the kind of partnerships the World Bank is pleased to help incubate and support. In the last few years our relationship with Clean Air Asia has matured into active collaboration on activities that support better policies for clean air, climate, and sustainable energy and transport in Asia, all of which are very important components of a more inclusive, greener growth path for Asia.”

John A. Room
Sector Director, East Asia
Sustainable Development Department
The World Bank

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“ADB and Clean Air Asia have a successful partnership in advancing the agenda in Asia on air quality and health, sustainable transport and low emissions urban development.”

Nessim Ahmad  
Director of the Environment and Social Safeguards Division  
Asian Development Bank

“A trusted partnership between ITDP and Clean Air Asia has enabled us to develop important innovations to evaluate sustainable transport solutions, with tools like TEEMP.”

Michael Replogle  
Managing Director for Policy & Founder  
Institute for Transportation & Development Policy

“Over the past decade, Clean Air Asia has become a family. It is an organization whose dedication to a sustainable Asia is only outdone by an ability to unite those similarly committed.”

Eric Zusman  
Climate Change Senior Policy Researcher  
Institute for Global Environmental Strategies

“I am so proud of Clean Air Asia and their efforts to improve air quality in Asia. They are an incredible organization.”

Iwao Matsuoka  
Institution for Transport Policy Studies

“A trusted partnership between ITDP and Clean Air Asia has enabled us to develop important innovations to evaluate sustainable transport solutions, with tools like TEEMP.”

Michael Replogle  
Managing Director for Policy & Founder  
Institute for Transportation & Development Policy

“Clean Air Asia is an abundant reservoir of profound knowledge about transport policies, prominent skills to analyze a huge amount of transport data and clear minds to create the vision for sustainable future transportation.”

Iwao Matsuoka  
Institution for Transport Policy Studies

“Clean Air Asia and BAQ conferences have contributed considerably to awareness and better air. Donors and other partners appreciate Clean Air Asia as an efficient and reliable partner for clean air in Asia.”

Roland Haas  
Programme Director  
ASEAN-German Technical Cooperation “Cities, Environment, and Transport”  
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

“Clean Air Asia is the organization and group of experts with continuous enthusiasm for air quality improvements in Asia. They spare no efforts to promote knowledge, information sharing and capacity building, and are heavily involved in the innovative China Green Freight Initiative.”

Huiming Gong  
Transport Program Director  
The Energy Foundation

“Clean Air Asia is an unusual professional consortium with unique potential of driving the sustainability agenda. There could not have been a smarter way than walkability, to relate to better air quality in Indian cities. Kudos to the all-encompassing walkability website, civil society friendly toolkit and application.”

Himani Jain  
Program Officer  
Shakti Sustainable Energy Foundation/ClimateWorks Foundation

“Clean Air Asia and BAQ conferences provide networking opportunities that have led to many successful collaborations. Through its website and publications, policy makers and others now have easy access to information on clean air management and the air quality of many Asian cities.”

Joseph Hui  
Deputy CEO (Technology & Corporate Development)  
National Environment Agency - Singapore

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National Environment Agency - Singapore

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