

ASIAN DEVELOPMENT BANK

TAR:OTH 37221

TECHNICAL ASSISTANCE
(Financed by the Japan Special Fund)

FOR

BETTER AIR QUALITY MANAGEMENT IN ASIA

November 2003

ABBREVIATIONS

ADB	–	Asian Development Bank
AQM	–	air quality management
ASEAN	–	Association of Southeast Asian Nations
CAI-Asia	–	Clean Air Initiative for Asian Cities
CSP	–	country strategy and program
MAPES	–	Mayors Asia Pacific Environmental Summit
NGO	–	nongovernment organization
SAARC	–	South Asian Association for Regional Cooperation
TA	–	technical assistance
UNEP	–	United Nations Environment Programme
WHO	–	World Health Organization

NOTE

In this report, "\$" refers to US dollars.

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I. INTRODUCTION

1. The regional technical assistance (TA)¹ will support emerging initiatives to strengthen air quality management (AQM) at the city and national level within the Asian region.² The TA will make a significant contribution, through improved awareness of decision makers, the integration of air pollution in environmental and sector policy making, and the formulation of specific integrated AQM action plans toward better AQM. Consultations were conducted with the transport, urban, health, energy, and environment networks in the Asian Development Bank (ADB). The logical framework for the TA is in Appendix 1.

II. ISSUES

2. More evidence is becoming available on the harmful impact of air pollution on public health in Asia and the associated economic and social costs. According to the World Health Organization (WHO), about 500,000 premature deaths occur yearly due to ambient air pollution in Asia. The associated economic costs are significant, and typically are about \$300 million–400 million for the megacities in Asia.³ Poor people are especially affected by air pollution. They are often most directly exposed to air pollution and they have fewer chances to seek medical assistance if affected.

3. Recent studies, such as Asian Brown Cloud: Climate and other Environmental Impacts carried out by United Nations Environment Programme (UNEP), have provided evidence that air pollution is more a regional phenomena than assumed until now. The Asian Brown Cloud project, which conducted the study, aims to (i) develop the science and capacity to study the issues of aerosols in the region; (ii) assess the impacts of atmospheric brown clouds on health, ecosystems and agriculture, climate change, and water budgets under one common framework; and (iii) raise the awareness on the issue and promote action for mitigation. Studies such as the Asian Brown Cloud have increased the attention on the regional dimension of air pollution and have increased scientific understanding of the harmful effects of air pollution (greenhouse gases, gaseous pollutants, and ozone) on ecosystems and agriculture in Asia. These harmful impacts are in addition to the local negative effects on public health, which have previously been established. Important information has also been generated through bilateral programs on AQM in Asia.⁴

4. A number of common weaknesses make it difficult for Asian countries to achieve healthful air quality standards: (i) insufficient monitoring of air quality and analysis to determine the

¹ The technical assistance (TA) first appeared in *ADB Business Opportunities* (Internet edition) on 10 May 2003.

² This TA builds on the work carried out under ADB. 2002. *Technical Assistance for Action Plans for Reducing Vehicle Emissions*. Manila (TA:5937-REG), and ADB. 2001. *Technical Assistance for Clean Air Initiative for Asian Cities*. Manila (TA:6016-REG). TA:5937-REG resulted in the formulation of policy guidelines to reduce vehicle emissions in Asia, and a number of studies and action plans, which have resulted in follow-up action by ADB in Indonesia, and by the United States Asia Environmental Partnership in Viet Nam. In other cases, such as the study on Compressed Natural Gas versus Ultra Low Sulfur Diesel in Mumbai, a substantive impact was made on shaping the policy debate on this topic in Asia. TA:6016-REG has been successful in establishing the Clean Air Initiative for Asian Cities (CAI-Asia), with currently over 100 organizational and 600 individual members and is now cofunded by 10 private sector firms. A web site has been set up and a successful Internet-based discussion group has been established. A capacity building arm of CAI-Asia established the Clean Air Training Network for Asia (CATNet-Asia). Three pilot projects have been initiated: (i) Public Health Impact of Air Pollution in Asia, (ii) Reducing Diesel Emissions in Bangkok, (iii) Cost of Refinery Upgrading for Diesel Refineries in Asia.

³ ADB. 2003. *Policy Guidelines for Reducing Vehicle Emissions in Asia*. Manila.

⁴ The most comprehensive programs are those of the Swedish International Development Cooperation Agency, United States Environmental Protection Agency, United States-Asia Environmental Partnership, and German Agency for Technical Cooperation (GTZ).

sources of pollution; (ii) emission standards for different types of sources are (still) too lenient and this makes compliance with WHO ambient air quality standards unlikely; (iii) the institutional responsibility for AQM is fragmented and coordination mechanisms are not well developed; (iv) lack of capacity and political commitment have generally resulted in weak enforcement of emission standards; (v) air pollution is not often considered an important factor in the formulation of environmental and important sector specific policies; (vi) the polluter pays principle is generally supported but little concrete progress has been made in introducing economic instruments to stimulate the abatement or prevention of air pollution; (vii) good practices and guidelines on AQM are not widely known in Asia; and (viii) relatively little attention is given to address air quality issues at a regional level in Asia.

5. A growing number of local and national governments have started formulating and implementing AQM strategies,^{5,6} but there is a continued need at the local, national, and regional⁷ levels to stimulate more broad-based involvement in AQM and to improve the quantity, relevance, and quality of AQM activities. Previous activities have had a strong focus on raising awareness about the harmful impact of air pollution. This needs to be followed by a stronger emphasis on actual policy formulation and the formulation and implementation of concrete AQM interventions. A key consideration is strengthening the linkage between government, private sector, and civil society in the formulation and implementation of AQM plans.

6. Strong coordinative approaches are required to enable effective information dissemination on air quality issues, collective learning, and the formulation of comprehensive AQM strategies. Past approaches toward AQM have often been too ambitious, and governments adopted overly complicated legislation and policies, that often were not implemented due to a combination of the lack of government capacity to enforce regulations and limited buy-in from key stakeholders. The Clean Air Initiative for Asian Cities (CAI-Asia) has proven to be an effective regional forum for promoting AQM in Asia, as is demonstrated by the interest shown by cities, national government agencies, nongovernment organizations (NGOs), and private sector organizations to join CAI-Asia as a member or support its activities.⁸

⁵ ADB is providing assistance to a number of countries and cities, namely: ADB. 1998. *Report and Recommendation of the President to the Board of Directors on Proposed Loans to the Republic of the Philippines for Metro Manila Air Quality Improvement Sector Development Program*. Manila; ADB. 2002. *Report and Recommendation of the President to the Board of Directors on Proposed Loans to the People's Republic of Bangladesh for Dhaka Clean Fuel Project*. Manila; and ADB. 2002. *Technical Assistance to Indonesia for Preparing the Clean Vehicle Fuel for Blue Skies Project*. Manila. Further AQM activities are included in the country programs for Afghanistan, People's Republic of China, India, Indonesia, and the Philippines.

⁶ Support is provided under TA:6016-REG (footnote 2) to the second phase of a benchmarking study of air quality management (AQM) in Asia, which covers 27 cities.

⁷ ADB, in cooperation with the Air Pollution in Megacities of Asia Project, is developing under TA:6016-REG (footnote 2) a strategic framework for AQM, which is intended to guide cities in Asia in their efforts to intensify AQM.

⁸ CAI-Asia has about 95 organizational members, which include 23 megacities and other large cities in Asia, and relevant national government departments in most of the Asian countries. Membership criteria for cities and national government agencies specify the willingness to set up a multistakeholder forum to coordinate the formulation and implementation of an AQM strategy. Cities also have to express a commitment to invest their own resources in AQM. CAI-Asia was established in 2001 with active support from ADB, and ADB is currently the main host of the CAI-Asia Secretariat. So far, TA:6016-REG (footnote 2), which provides support to the establishment of CAI-Asia is ADB's only TA which is cofinanced by the private sector. The TA will contribute to the Mayors Asia Pacific Environmental Summit (MAPES) process, which is also supported by ADB. In MAPES, mayors of Asian cities are invited to make commitments on what their cities will do to make improvements in environmental management, including air quality. The TA will assist a number of cities, which have made commitments in the most recent MAPES in Hawaii in September 2003.

III. THE TECHNICAL ASSISTANCE

A. Purpose and Output

7. The TA will make a significant contribution, through (i) improved awareness of decision makers, and (ii) the integration of air pollution in environmental policy making and implementation as well as in planning and implementing specific sector policies that regulate sectors that influence air pollution levels. The sectors include transport, energy, health, and urban development sectors. Improvements in policies and associated legislation combined with specific activities in the countries to monitor ambient air quality and reduce individual sources of pollution will help achieve medium- and long-term improvements in ambient air quality.

8. The TA will have the following components and outputs:

- (i) improved knowledge of the economic and social implications of local and regional air pollution by decision makers in Asia from local and national governments, private sector, and NGOs;
- (ii) formulation of appropriate response strategies (legislation, policies, and project activities) at local, national, and regional levels, which will contribute to prevention and abatement of local and regional air pollution; and
- (iii) strengthening of regional dialogue and exchange of information on AQM and identification of regional approaches to improve AQM.

B. Methodology and Key Activities

9. The TA will undertake the following key activities to implement its three main components:

- (i) **Output 1.** Improved knowledge base and better understanding of economic and social implications of local and regional air pollution by decision makers in Asia:
 - (a) documenting of past and ongoing air pollution health impact studies in Asia,
 - (b) dissemination of air quality-related information through <http://worldbank.org/cleanair/caiasia> and <http://adb.org/vehicle-emissions>,
 - (c) facilitation of discussions on AQM in Asia on the CAI-Asia electronic mailing list,
 - (d) mainstreaming of air quality concerns in ADB's operations and building of capacity to respond to requests for assistance for AQM programs, and
 - (e) dissemination of AQM information in relevant workshops;

- (ii) **Output 2.** Formulation of national and local AQM strategies and the identification of AQM assistance in selected locations:⁹
 - (a) support for the establishment or strengthening of local and national level multistakeholder groups,
 - (b) capacity building of local and national multistakeholder forums in AQM,
 - (c) support for the (re)formulation of national and/or local AQM legislation and/or strategies in selected locations,
 - (d) promotion of the integration of national and local air quality issues in ADB operational documents for participating countries,
 - (e) identification of assistance in the six targeted locations;
- (iii) **Output 3.** Regional dialogue on AQM:
 - (a) development of a regional agenda on AQM for Asia;
 - (b) development of coordination and cooperation with regional bodies such as the Association of Southeast Asian Nations (ASEAN), South Asian Association for Regional Cooperation (SAARC), and international organizations such as UNEP to promote regional approaches to AQM; and
 - (c) identification of regional TA to stimulate monitoring and analysis of regional, trans-boundary air pollution, and support other measures to aid the implementation of the common regional agenda on AQM.

10. The TA will also, at a more general level, help identify overall investment needs for AQM at the regional level. This will take into account the expected source of such investments (i.e., private sector or national government) and the mechanisms through which the polluters-pay principle can be used to transfer costs to the polluters.

C. Cost and Financing

11. The total cost of the TA is estimated at \$300,000. The TA will be financed on a grant basis by the Japan Special Fund, funded by the Government of Japan. The cost estimates provide for consulting services, international travel, administrative costs, workshop expenses, and studies. It is anticipated that the private sector will contribute to the implementation of the TA. Private sector cofinancing to TA: 6016-REG (footnote 8) amounts to about \$240,000 as of 18 September 2003. If private sector cofinancing is received, the scope of the TA will be extended. The detailed cost estimates and financing plan are provided in Appendix 2.

⁹ Possible areas for assistance include (i) ambient air quality monitoring, (ii) cleaner production, (iii) cleaner fuels and vehicles, and (iv) sustainable transport. The tentative list of cities to be covered by the TA are Baguio, Philippines; Colombo, Sri Lanka; Haiphong, Viet Nam, Lahore, Pakistan; and Surabaya, Indonesia, and one or more cities in the People's Republic of China.

D. Implementation Arrangements

12. The TA will be implemented over an 18-month period to commence in November 2003 and will be completed by April 2005. The TA will be executed by ADB and will be supervised by the Regional and Sustainable Development Department (RSDD). ADB will coordinate closely with the CAI-Asia in implementing the TA. A team, headed by the Finance and Infrastructure Division of RSDD, will actively coordinate with the transport, energy, health, urban management, and environment committees and networks in ADB; the regional departments; and resident missions in developing member countries where the TA will promote the development of local networks and the formulation of AQM strategies. In the selected countries, the TA will work actively with existing multistakeholder networks established under the CAI-Asia or by other groups.

13. The TA will require about 5 person-months of international consulting services to assist with the implementation, especially to support the establishment of local networks and the formulation of AQM actions plans. A total of 28 person-months of domestic consulting services will be required to help establish local networks and support the local networks in the formulation of local action plans and identification of assistance for AQM. The consultants will be engaged by ADB in accordance with its *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for the engagement of domestic consultants. The consultants will be engaged as individual or through a consulting firm, whichever is more appropriate under the circumstances of countries taking part in the TA. The outline terms of reference are given in Appendix 3.

14. The results of the TA will be disseminated through the ADB and the CAI-Asia web sites, as well as other communication channels of CAI-Asia, including but not limited to the CAI-Asia electronic mailing list and newsletter.¹⁰ Local workshops are planned for countries and/or cities where the TA will support the establishment of a local network for AQM. Furthermore, the TA will support the organization of one regional workshop to disseminate the results of the TA and the participation of key project stakeholders in other relevant regional workshops.

IV. THE PRESIDENT'S DECISION

15. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$300,000 on a grant basis for Better Air Quality Management in Asia, and hereby reports this action to the Board.

¹⁰ ADB currently has a dedicated section on AQM on its web site (<http://adb.org/vehicle-emissions>). Activities are ongoing to merge the content of this site with the current CAI-Asia web site (<http://worldbank.org/cleanair/caiasia>), which in the future will be hosted on an external server with the URL: <http://cleanairnet.org/caiasia>.

TECHNICAL ASSISTANCE FRAMEWORK

Design Summary	Performance Indicators/ Targets	Monitoring Mechanisms	Assumptions and Risks
Goal Air quality status in Asian cities stabilized or improved	Pollution levels for key pollutants stabilized or improved	Benchmarking reports on air quality management (AQM)	Awareness raising and action planning followed by investment in AQM
Purpose AQM in Asia strengthened	<ul style="list-style-type: none"> • At least 6 cities with approved and funded comprehensive AQM • Budget for AQM activities increased by at least 50% • Regional cooperation on AQM strengthened 	<ul style="list-style-type: none"> • Project documents • National and local government budget • Regional events and networking strengthened 	Awareness-raising activities secure the interest of key stakeholders in Asia to increase AQM activities
Outputs 1. Improved knowledge base and better understanding of economic and social implications of local and regional air pollution by decision makers in Asia	<ul style="list-style-type: none"> • Analysis of existing 67 health impact studies disseminated among relevant decision makers in Asia • Integrated web site on AQM established, and links all other main sites on AQM in Asia • Minimum of 6 country strategies and programs (CSPs) that address air quality issues • Inputs made in at least 8 regional and local workshops on AQM • Coorganizer in at least 6 national and regional AQM workshops 	<ul style="list-style-type: none"> • Synthesis document • Web site and web statistics • CSP and CSP update documents • Workshop presentations 	United Nations Environment Programme's Asian Brown Cloud Project has the capacity to provide regular inputs in awareness raising activities on regional dimension of air pollution
2. Formulation of national and local AQM strategies and the identification of AQM assistance in selected locations based on review of legislation where relevant	<ul style="list-style-type: none"> • Local networks in 6 cities and/or countries established • Within each of the 6 networks at least 15 people will receive some form of training on AQM • Six comprehensive AQM strategies, which address local and regional air pollution issues formulated in a participatory manner • Follow-up activities will be formulated in 4 out of 6 locations where an integrated AQM action plan is formulated 	<ul style="list-style-type: none"> • Agreements reached between ADB, Clean Air Initiative for Asian Cities (CAI-Asia), and participating cities and/or countries • Agreed upon strategies and implementation reports • Strategy documents endorsed by local networks • CSP and CSP reviews, project concept papers, and planning documents of other multilateral and bilateral development agencies 	

Design Summary	Performance Indicators/ Targets	Monitoring Mechanisms	Assumptions and Risks
3. Regional dialogue on AQM	<ul style="list-style-type: none"> • Four additional memorandum of agreements drawn up with cooperating regional organizations on AQM • Regional groupings such as the Association of Southeast Asian Nations (ASEAN) and South Asian Association for Regional Cooperation (SAARC) make air quality into a priority issue • Three regional technical assistance activities will be identified to further promote regional approaches to AQM • Decision makers in the Asian region develop a consensus on strategic framework on AQM 	<ul style="list-style-type: none"> • ASEAN and SAARC action plans and strategies • Benchmarking reports and updates on Asian Development Bank and CAI-Asia web sites • Strategic framework document and minutes of meetings • Agreed upon regional policy and standards 	Regional stability allows decision makers to focus on environmental issues such as air pollution
Activities 5 person-months international consultants 28 person-months domestic consultants 20 person-months action plan consultants Training/seminar/workshop expenses	Inputs <ul style="list-style-type: none"> • \$100,000 • \$50,000 • \$72,000 • \$23,000 		

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Foreign Exchange	Total Cost
Japan Special Fund Financing		
1. Consultants		
a. Remuneration and Per Diem		
i. International Consultants	100.0	100.0
ii. Domestic Consultants' Remuneration and Per Diem	122.0	122.0
b. International and Local Travel	15.0	15.0
c. Reports and Communications	5.0	5.0
2. Workshops, Training, Seminars, and Conferences	23.0	23.0
3. Miscellaneous Administration and Support Costs	5.0	5.0
4. Contingencies	30.0	30.0
Total	300.0	300.0

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. International Consultant: Air Quality Management Specialist (5 person-months)

1. The consultant will:

- (i) help the Asian Development Bank (ADB) officer implement the technical assistance (TA);
- (ii) be a member of the team set up for the TA;
- (iii) oversee the selection of cities and/or countries in which local networks for air quality management (AQM) will be set up;
- (iv) oversee the development of capacity building plans for selected networks;
- (v) oversee facilitation by domestic consultants to develop local AQM action plans and strategies;
- (vi) oversee domestic consultants recruited in headquarters to help implement coordination;
- (vii) be responsible for the formulation of project concept papers for each external assistance for each of the six networks supported by the TA, for consideration by ADB, or other multilateral and bilateral development organizations;
- (viii) provide inputs on the conceptual organizational development of the Clean Air Initiative for Asian Cities (CAI-Asia);
- (ix) prepare position papers for submission and discussion by the CAI-Asia Coordinating and Executive Council;
- (x) conduct dialogues with other multilateral and bilateral development organizations as well as international nongovernment organizations on their possible contribution to AQM in Asia and to the CAI-Asia;
- (xi) represent CAI-Asia in various international and regional workshops, meetings and seminars;
- (xii) coordinate membership drives and associated fund raising activities among private sector companies with the aim to strengthen financial sustainability of CAI-Asia; and
- (xiii) help supervise the CAI-Asia secretariat in its activities to implement the CAI-Asia business plan, including progress reporting.

B. Domestic Consultants

1. Assistant Implementation Coordinator (12 person-months)

2. The consultant will:

- (i) assist the TA officer and international consultant in implementation coordination of the TA;
- (ii) assist in the recruitment and coordination of domestic consultants;
- (iii) provide inputs in the formulation of project concept papers for each of the six networks supported by the TA for consideration by ADB, or other multilateral and bilateral development organizations;
- (iv) provide inputs to the CAI-Asia secretariat in ADB, which involves involvement in membership drive, communication strategy, preparation of meetings, awareness raising activities, and fund raising; and

- (v) represent CAI-Asia in international and regional workshops, meetings, and seminars as approved by the project officer.

2. Web Site Coordinator (6 person-months)

3. The consultant will:

- (i) coordinate ADB's input into the CAI-Asia and ADB web sites with respect to AQM;
- (ii) contribute to the development of mechanisms that will ensure active contribution by CAI-Asia members and other groups in generating content for the CAI-Asia and ADB web sites on AQM issues;
- (iii) help supervise the researcher(s) working on content development for ADB and CAI-Asia web sites on AQM; and
- (iv) undertake steps to enhance sustainability of the web sites.

3. Researchers (10 person-months)

4. The consultants will:

- (i) review literature to identify relevant materials for the ADB and CAI-Asia web sites and its partner sites;
- (ii) maintain regular contacts with CAI-Asia members, focal points, and local chapters to ensure their active cooperation in the generation of content for the CAI-Asia web site and its partners sites; and
- (iii) contribute to CAI-Asia studies and pilot projects by collecting information.

4. Action Plan Consultants

5. The consultants will have the following tasks:

- (i) In direct and close cooperation with focal points of CAI-Asia members (cities and/or national government agencies), develop a feasible concept for the establishment of a local network on AQM, which integrates local CAI-Asia members and other relevant stakeholders with respect to AQM. This is to be done in a manner that builds on local initiatives rather than replacing them.
- (ii) Based on an assessment of current capacity, facilitate the development of a capacity strengthening plan that will make the local network more effective and strengthen the capacity of individual key members of the network.
- (iii) Conduct a participatory review, involving all important stakeholders, CAI-Asia members, and others, of the current and planned AQM activities in place.
- (iv) In direct consultation with local network, prioritize future AQM activities and external support required. For Indonesia and Philippines, consultants will coordinate their activities with other ongoing TAs with respect to AQM activities at the national level.
- (v) In consultation with local network, CAI-Asia secretariat, and the TA team, document planned AQM activities and external support required.
- (vi) Assist the local network in providing regular updates on AQM for inclusion on the CAI-Asia web site.