

FINAL REPORT

**Support for USAEP's Energy/
Climate Change Strategy in Asia**

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Abstract

The purpose of this contract was to support USAEP's Environmental and Energy/Climate Change Strategy in Asia. To this end, the contractor assessed environmental, energy and climate change issues and opportunities in the region; advised field staff and partners on implementation of USAEP's Climate Change Strategy; assisted in the development of environmental and energy activities; strengthened existing partnerships in the region; and built new ones. The contractor performed related tasks in India, Nepal, Bhutan, and Hong Kong, and organized a major conference of mayors and other local government officials from all over the Asia-Pacific region. In addition to general assistance to USAEP field offices and outreach to a broad array of government, business, and NGO leaders, his major projects included the Indo-U.S. Business Dialogue on the Clean Development Mechanism, an innovative I&M program for 2-wheel vehicles in Delhi, and promotion of a low-energy sewerage system technology for the city of Varanasi.

Executive Summary

The purpose of this contract was to support USAEP's Environmental and Energy/Climate Change Strategy in Asia. From November 1998 to December 1999, I assessed environmental, energy and climate change issues and opportunities in the region; advised field staff and partners on implementation of USAEP's Climate Change Strategy; assisted in the development of environmental and energy activities; strengthened existing partnerships in the region; and built new ones. I carried out related tasks in India, Nepal, Bhutan, and Hong Kong, and organized and co-chaired the Mayor's Asia-Pacific Environmental Summit. In addition to general assistance to USAEP field offices and outreach to a broad array of government, business, and NGO leaders, my major projects included the Summit, the Indo-U.S. Business Dialogue on the Clean Development Mechanism, an innovative I&M program for 2-wheel vehicles in Delhi, and promotion of a low-energy sewerage system technology for the city of Varanasi. My general efforts and these specific projects helped to: (1) secure significant policy changes on the part of the Indian government with regard to actions aimed at limiting the growth of greenhouse gases; (2) spur Indian industry and government to work more closely together to address the severe local air pollution as well as reduce greenhouse gas emissions; (3) build political support and provide substantive backup for innovative, grassroots efforts to improve water quality in the Ganges; (4) bring mayors of the Asia Pacific region together in the first-of-its-kind summit devoted to sustainable development and the environment.

In the climate change area, we are now poised to see a partnership between the United States and India where previously there had only been acrimony. Importantly, the Indians have realized that mechanisms contained in the Kyoto Protocol can help address local pollution problems and, by helping fund needed infrastructure, catalyze clean and sustainable economic growth. I was able to help secure this new assessment by the government by direct outreach, but also by convincing Indian industry of this case and helping them then make the case to their government leaders. To sustain this new partnership, it is now incumbent upon the Government of the United States and US industry to build partnerships with the Indians that, in fact, promote economic opportunity in India even while helping to alleviate the global greenhouse problem.

Two-wheelers account for some 70% of the traffic in Delhi. Collectively, they are also the leading contributors to such menacing local pollution problems as carbon monoxide and particulates. And, the transport sector overall is a major and growing contributor to the problem of global climate change. At the same time, very preliminary research in India suggests that cost effective interventions can significantly reduce pollution from this sector. Robust inspection and maintenance regimes offer tremendous promise in this regard. I therefore worked to build a public/private partnership in India designed to raise public awareness of the private and social benefits of participation in I&M efforts and to provide free I&M service. Our effort was extremely successful, attracting over 65,000 two wheeler owners and producing data that will be critical in helping India design a better and more effective I&M system. Steps must now be

taken further to analyze the data; formulate policy proposals; and expand the effort to include three and four wheelers and cities other than Delhi.

The city of Varanasi is considered one of the oldest cities in the world and among the most holy for Hindus. Sitting on the bank of the Ganges river, called "Mother Ganga" by Hindus, Varanasi attracts millions of pilgrims and tourists. The city itself has a vast permanent population. Unfortunately, the city lacks infrastructure to deal with waste generated by all of these masses, and efforts to date by the Government of India to address the problem have been unsuccessful. As a result, the Ganges is horribly polluted, and those relying on the waters of the Ganges suffer illnesses attributable to the heavy bacterial and chemical contamination. In the face of these disastrous circumstances, a local grassroots coalition has come together around a new approach to attacking the problem. However, the coalition lacks the technical and financial resources necessary further to inform and build support for their effort. I was able to provide strategic advice to the group; raise funds to enable additional expert analysis to be brought to bear; and, in partnership with the US Agency for International Development, provide the opportunity for greater public exposure for the group's effort. Early this year, a conference will be held to bolster the technical merits of the group's approach and, importantly, shine a public spotlight on the group's effort.

The Mayors' Asia Pacific Environmental Summit, held in the city of Honolulu from February 1-3, 1999, brought together over 400 delegates including Mayors and other local government representatives from 29 countries of the Asia-Pacific region. I co-chaired the Summit with the Mayor of Honolulu. As a result of the presentations made and connections established, the local officials pledged at the end of the Summit to build environmental protection strategies into their economic growth plans. Underscoring their commitment to the cause of sustainable development, many local officials announced specific actions they were prepared to take in their own cities to promote clean growth. In addition, the participants urged that the Summit be established as an ongoing forum with a full-time secretariat.

1. Overview

The purpose of this contract was to support USAEP's Environmental and Energy/Climate Change Strategy in Asia. To this end, I assessed environmental, energy and climate change issues and opportunities in the region; advised field staff and partners on implementation of USAEP's Climate Change Strategy; assisted in the development of environmental and energy activities; strengthened existing partnerships in the region; and built new ones. I was based in Delhi at the Tata Energy Research Institute (TERI). This organization granted me the status of Senior Visiting Fellow, and provided various logistical support on a reimbursable basis.

I engaged in general outreach and activities to enhance USAEP climate change strategies. This included numerous speaking engagements as well as small group meetings. I spoke in many major cities on the climate issue often through the USIS Environmental Speaker Series, and helped organize the Indo-U.S. Business Dialogue on the Clean Development Mechanism. I advised the USAEP Secretariat and field staff in development of workplans. I assisted in the design, development, and implementation of selected environmental and energy activities, including an innovative I&M program for 2-wheel vehicles in Delhi to improve air quality, and promotion of a low-energy sewerage system technology for the city of Varanasi. I assisted in building networks of urban and industrial managers interested in the energy/environment/climate nexus, and in innovative policies and technologies, particularly via the Mayor's Asia-Pacific Environmental Summit.

The sections below give greater detail on my major projects.

2. Promoting Greater Indo-U.S. Cooperation on Climate Change

Work in the area of climate change produced very significant results that promote greater Indo-U.S. cooperation on this critical environmental problem. Much of this work was carried out in close partnership with TERI Senior Visiting Fellow Kathleen McGinty. We also collaborated closely with the USAID India Mission's ongoing climate programs.

Over the course of the entire year, we engaged in general outreach to all sectors of Indian society to increase knowledge and awareness of the issue. We did the same in visits to Nepal, Bhutan and Hong Kong. The sectors we reached out to included government (national, state, and local), businesses (individual firms and trade groups), NGOs, and academics and research institutions. Not surprisingly, we found widely varying levels of knowledge on the science, impacts, mitigation strategies, and international steps to combat climate change. The "takeaway" message we typically left was that India had a lot at stake in the issue, in terms of potential impacts of climate change, and in terms of financial flows that could occur through the Clean Development Mechanism (CDM) or similar internationally sanctioned financial instruments aimed at slowing the growth of greenhouse gas emissions in developing countries. Nearly all organizations and individuals we met with came away very positive toward the CDM, and wanted to learn more. Many had interesting ideas for CDM projects, and were eager to pursue them.

To further promote greater Indo-U.S. cooperation on climate change and stimulate strong interest in CDM on the part of the Indian business community, we planned and executed the Indo-U.S. Business Dialogue on the Clean Development Mechanism. This forum took place on May 20-21

in Washington, D.C.¹ The goal of this forum was to conduct thoughtful discussion among a group of leading CEOs and senior managers from India and the U.S. on the challenges and the opportunities presented by the CDM. Fifty business leaders participated in the Dialogue, joined by a select group of government officials and NGO leaders.

The CDM offers the promise of “win/win” partnerships between corporations in the industrialized and developing worlds and/or between corporations and governments, according to corporate executives participating in the Dialogue. Progress on environmental and economic priorities can be furthered through such partnerships. Action should be taken now to develop policy and experience with regard to CDM-type instruments. The Confederation of Indian Industry (CII) stated its goal of identifying five such projects by the end of the year. Moreover, in a “Next Steps” document the business leaders that they would remain actively engaged in the on-going international and domestic policy development processes related to the CDM. The business leaders stressed that implementation procedures should involve private sector actors and should be as streamlined and efficient as possible.

The Dialogue started with a high-level meeting at the White House in which senior U.S. Government officials expressed the commitment of the U.S. Administration to mitigating global climate change, and the Indian delegation described the progress India has already made in reducing carbon dioxide emissions, in partnership with the U.S. Agency for International Development (USAID). Considerable enthusiasm was expressed by the Indian and U.S. private sector participants for the potential opportunities to form partnerships through instruments like the CDM.

A recurring theme of both days of the Dialogue was that Indian and U.S. businesses are eager to begin development of CDM-type projects, prior to a formal international CDM system or ratification of any change to the Framework Convention on Climate Change (FCCC). Business leaders shared the opinion that the experience gained from projects developed now will inform the design of CDM, help to develop the carbon emissions market, and advance global efforts to address the climate change challenge. To begin the process, the participants suggested that project sectors be chosen for which a simple, transparent process for designing, approving and implementing CDM-type projects can be developed quickly. Potential projects identified included those involving clean coal technologies (such as fluidized bed combustion and integrated gasification combined cycle technologies), operational improvements at existing power plants; coal washing; cogeneration from waste biomass; privatization of distribution companies; and demand side management (including efficiency improvements in energy-intensive or greenhouse gas-intensive industries such as cement, iron and steel, caustic soda, and textiles). It was felt that over time, after experience is gained through these relatively simple, straightforward projects, processes can be devised to accommodate more complex projects and/or projects for which emissions reductions are less readily measured.

The participants agreed that the focus at this phase should be on partnerships and contractual arrangements, rather than on speculations as to the magnitude and future movement of a global carbon emissions market. It was felt that the Government of India could contribute to the effort and

¹ Note: in the Dialogue and in these proceedings, “CDM” refers to the type of flexibility mechanism identified in the Kyoto Protocol and to similar mechanisms that may emerge from future climate negotiations.

significantly advance its own desire to meet pressing environment and development challenges in India by establishing its own national framework that clearly identifies priority development sectors in which CDM-type projects would be welcome, and that concisely articulates approval processes that would apply to these projects. Participants strongly agreed that sustainable development priorities and greenhouse gas reduction priorities could be advanced simultaneously through well-designed CDM projects.

Business leaders agreed that the definitions of “additionality” and “baselines” that emerge from the international negotiations will be key determinants of the success of the CDM. They stressed that perfection is the “enemy of the good” with regard to the CDM: overly cumbersome or exacting methodologies will increase transaction costs and decrease the attractiveness of the CDM. It was underscored that simplicity and transparency are essential to a successful CDM system, and that calculations should be based on simple templates and benchmarking techniques.

Implementation of the CDM creates the opportunity for whole new businesses to emerge. Drawing on experiences gained in the financial sector, private enterprise has important expertise to offer as systems are designed to monitor, audit, and verify CDM projects. Dialogue participants noted that the CDM should draw on these private sector skills, rather than create new government agencies to perform every task.

Also critical to a successful CDM system, participants noted, are credits with solid legal standing that are well-defined and certifiable. It was noted that the specific allocation of credits between parties, including the period of time over which the credits are allocated, are most properly understood as contract variables that should be negotiated and agreed by the parties to the project, rather than set through a predetermined formula or rule. As an international market for trading carbon emissions develops, participants stressed that its rules and prices must be transparent and predictable.

Several new initiatives were noted during the course of the Dialogue. USAID, in partnership with the U.S. Energy Association and the International Utility Efficiency Partnership, Inc. noted the launch of an “International Climate Change Project Fund” to promote public-private partnerships and provide funds for pre-investment analysis of CDM-like projects in clean energy. USAID and the U.S.-Asia Environmental Partnership (USAEP) also unveiled their “South Asia Regional Initiative” aimed in part at promoting clean energy development and cooperation in South Asia and building institutional capacity in the region to participate in CDM. USAID hosted an inaugural conference on this subject in December, 1999 in Kathmandu. Finally, the International Finance Corporation (IFC) highlighted several of their new undertakings relevant to the CDM. Importantly, IFC underscored their keen interest in identifying and supporting CDM projects, and announced that they had now completed some 19 benchmarking templates aimed at standardizing and simplifying greenhouse gas calculations.

We compiled the the Proceedings of the Dialogue which describes and documents it in more detail. These Proceedings were distributed to participants and widely to other Indian and U.S. government, business, and NGO leaders. The document is posted at www.climatechangeindia.org.

Toward the end of the year, an event took place that reflects our whole year of work in this area, and that of the CCOA program. On October 26, 1999 in Delhi, when India's Minister of External Affairs and U.S. Energy Secretary Bill Richardson signed a Joint Statement of Cooperation in Energy and Related Environmental Aspects. This Joint Statement is an important

milestone in strengthening the Indo-U.S. working relationship in addressing the issue of global climate change in general and issues related to the Clean Development Mechanism (CDM), a key provision of the Kyoto Protocol to the Framework Convention on Climate Change. In paragraphs 13 and 14, the document states: "The Governments of the United States and India agree to. . .work towards early agreement on the elements of the Kyoto Mechanisms. . . . The Governments of the United States and India resolve to work closely together with other countries to develop agreed international rules and procedures for the Kyoto mechanisms, including the Clean Development Mechanism."

At the time this writing, India and the U.S. were in process of setting up a joint working group on climate change to follow up the path-breaking joint statement concluded in October 1999. If these two large and influential democracies can find common ground on the CDM and other issues related to the Kyoto Protocol and climate change, then there is added hope that the world as a whole will be able to take stronger steps to addressing this global environmental challenge.

More detailed reflections on our climate work in India and the complete text of the Joint Statement is available in the form of a paper submitted for journal publication.

3. Inspection and Maintenance Camps for Two-Wheel Vehicles in Delhi

Working in partnership with other TERI staff, I played a catalytic role in leading the Society of Indian Automotive Manufacturers (SIAM) and various partner organizations to conduct a series of innovative inspection and maintenance (I&M) camps and to gather extensive emission, vehicle, and driver data for two-wheel vehicles operating in Delhi. These data can serve a variety of purposes in improving air emission inventories and designing both future regulations and voluntary programs that promote regulatory compliance. This section presents background information on the problem of controlling in-use vehicle pollution in India; the origin and operation of the I&M camps; and plans for additional data collection and analysis.

Delhi and other major Indian cities are among the most polluted in the world. Vehicles are a major source of urban air pollution and related health impacts, and two-wheel vehicles account for a large portion of the total vehicle emissions and petroleum consumption. Strengthened emission standards for new vehicles and court edicts on fuels and various commercial vehicles will have some beneficial impact on air quality, but India's current efforts to control emissions from the in-use vehicle fleet are not as strong or effective as they could be.

The Pollution Under Control (PUC) certificate program is in effect in most Indian cities to control emissions from in-use private vehicles. It requires owners of these vehicles to obtain a PUC certificate at least every 6 months. To qualify for a PUC certificate, a vehicle's emissions must not exceed an idling emission standard of 4.5% CO for two-wheel vehicles and 3% for cars. The PUC program suffers from a number of weaknesses. First, the idling CO test is not a reliable indicator of a vehicle's overall emissions. Second, the idling CO test is fairly easy to pass. Third, anecdotal evidence suggests that some inspection centers can be bribed to give PUC stickers to vehicles that fail the test. Finally, vehicle owners who ignore the PUC sticker requirement seem to face only a modest threat of enforcement

Controlling emissions from private in-use vehicles is an example of a pollution problem caused by a very large number of small sources. Many pollution problems in the agricultural and small-scale industrial sectors share this same characteristic. Given the cost and difficulty of applying strict enforcement efforts to very large numbers of small pollution sources in such cases, government often supplements enforcement efforts with activities aimed at promoting voluntary compliance. These activities are sometimes undertaken in partnership with the private sector and NGOs.

For several years, there have been efforts led by the vehicle manufacturers to promote compliance with the PUC program. In various Indian cities, manufacturers have staged "pollution control camps" at which they have provided free emission tests and a free PUC certificates to those vehicles that pass. Government has collaborated in this effort in various ways; at a minimum, it has granted the manufacturers the authority to issue PUC certificates at the camps.

Another obstacle to improving air quality in Indian cities is the lack of reliable data on the emissions from in-use vehicles. In attempting to estimate emission inventories, analysts inside and outside of government are hampered by poor data on fleet composition, emissions per kilometer, kilometers traveled, etc. Policy makers also lack on data that could guide standard setting, enforcement efforts, or voluntary program design.

Recognizing the twin problems of a weak PUC program and unreliable data, I began discussions with SIAM and other TERI staff in early 1999 on how to make progress on both. As a starting point, the two organizations decided to focus on two-wheelers in Delhi. SIAM and TERI outlined a project that would: educate the public about the benefits of inspection and maintenance (I&M); conduct voluntary I&M camps; and gather extensive emission data. The project's goals were to:

- 1) Reduce significantly emissions from the vehicles participating in the I&M camps.
- 2) Contribute to greater citizen knowledge and awareness of the private and public benefits of I&M.
- 3) Build up the human and institutional capacity of government, businesses, and NGOs to conduct I&M programs.
- 4) Create a database to help provide better estimates of the total emissions from two-wheelers; better estimates of the emissions reductions attributable to I&M programs, both voluntary and regulatory; better estimates of the cost-effectiveness of such programs; and a solid basis for design of future I&M programs and vehicle components.

With these goals outlined, SIAM and TERI launched a unique collaborative effort involving business, government, and non-governmental organizations (NGOs). SIAM recruited all seven two-wheeler manufacturers in India to participate. Other partners included: Automotive Research Association of India (ARAI), Central Pollution Control Board, the Delhi Government, Indian Oil Corporation, Development Alternatives, U.S Agency for International Development (USAID), and Oak Ridge National Laboratory (U.S.).

An intensive period of planning began in July 1999 with TERI and SIAM hosting a design workshop for the project in Delhi and ARAI holding several meetings focused on data and technical issues. The outcome was a detailed project plan that attracted funding from the USAID India Mission to supplement the contributions of SIAM and its member companies. This plan was refined in a series of meetings among project partners in September and October.

The I&M camps were formally launched on November 11 by Delhi's Chief Minister. During the following 3 weeks, I&M camps were conducted simultaneously at four prominent sites in different parts of Delhi. After six days of operations, and two days off, the camps moved to four new locations, thus a total of 12 locations were covered over 3 weeks. Newspaper and radio advertising, along with street banners and posters, attracted drivers to the camps.

Just as in past pollution check camps conducted by a single manufacturer, the I&M camps offered free emission tests to all participants, issued free PUC certificates to qualifying vehicles. However, the I&M camps added the following components:

- 1) Vehicles that initially did not pass the PUC emission test received free maintenance from company mechanics. First, a mechanic adjusted the carburetor and retested the vehicle. If it still did not pass the PUC test, the mechanic cleaned and adjusted the spark plug, cleaned the air filter, and retested again.
- 2) Drivers had the opportunity to undergo a safety check as well, covering items such as brakes, clutch, lights, and tires.
- 3) An unprecedented quantity of data was collected from each participating vehicle. (Annex 1 contains the data entry card used in the I&M camps.) Data collected included:
 - Driver demographics (age, occupation, driving habits, etc.).
 - Vehicle characteristics (type of vehicle, age, type and size of engine, etc.).
 - Measurements of CO and hydrocarbon (HC) emissions both before and after any maintenance performed.
- 4) Smoke opacity measurements were collected for a sample of two-wheelers participating in the camps.
- 5) Dealers' service centers conducted fuel efficiency tests on several hundred two-wheelers around the city while also collecting driver, vehicle, CO, and HC data as described above.
- 6) Over the coming months, SIAM will study how emission performance declines over time. SIAM will contact a sample of several hundred drivers and perform emission tests on their two-wheelers at specified intervals.

The I&M camps attracted over 65,000 participants, a number greater than any previous pollution check camp. Anecdotal evidence from comment cards filled out by some drivers indicated a high level of satisfaction. The database generated on two-wheelers is unprecedented in size and

quality. Speakers at the inauguration such as the Chief Minister and SIAM's president indicated their commitment to sustain the effort to improve the PUC program and strengthen I&M in India.

Staff from the Oak Ridge National Laboratory will conduct preliminary analysis of the data gathered and present it appropriate forums early in 2000.

In the coming year, SIAM plans to undertake "Phase II" of data collection and analysis. This will focus on mass emission testing. The analysis will help assess the benefits of the I&M camps, develop a sustainability I&M strategy, and contribute to better product design. Phase II will conduct mass emission tests on a carefully chosen, statistically significant sample of several hundred two-wheelers with a chassis dynamometer. These tests will provide reliable data on mass emission and fuel consumption readings in contrast to the CO and HC idle tests. This testing will help determine the statistical relationship (if any) between the idle and mass emission tests. It will also determine the impact of maintenance on mass emissions and fuel consumption. ARAI will be the lead organization in Phase II, and is currently raising funds to carry out these next steps, which promise provide further guidance to I&M programs in India. I assisted them in preparing a grant application to the CPCB that would be funded by the World Bank.

3. Innovative Sewerage Treatment for Varanasi

The city of Varanasi sits on the banks of the sacred Ganges River, known as "Mother Ganga" to devout Hindus. Modern times have brought some harsh consequences to the area. The Ganges has become heavily polluted. Garbage and raw sewage contaminate the river and threaten the health of the city. A particularly acute problem is posed for the sixty thousand pilgrims and devout Hindus who bathe in the river each day.

In 1986, the Government of India (GOI) launched Phase I of the Ganga Action Plan (GAP) in Varanasi to clean the holy river. In 13 years, GAP spent about \$125 million and constructed two sewage treatment plants. In spite of this, the river continues to be polluted. However, the fecal coliform count (FCC), a measure of the contamination from human and animal waste in a water body, was recently reported to be as high as 70,000/100 ml to 150,000/100 ml which is 140 to 1,500 times higher than the safe limit set by the World Health Organization. Similarly, the river's Biological Oxygen Demand (BOD), a measure of the ability of a water body to sustain aquatic life, was reported to be between 3 mg/litre and 25 mg/litre, a range which is greater than the permissible limit. Much money has been spent in the effort, but it appears that little has been achieved and, in fact, that in some aspects the situation is worse than before major interventions pursuant to GAP. The question of what to do next to clean up the Ganges is a contentious one.

My work in this area was conducted again in collaboration with TERI Senior Visiting Fellow Kathleen McGinty. Our effort was aimed at raising awareness of the failure of GAP I; highlighting alternative approaches to the problem; supporting local-based solutions; and securing the time and attention of senior Government of India officials to this issue. We did this through a series of meetings and by planning and securing funding for a workshop.

We were successful in obtaining a Ford Foundation grant of \$30,000 for TERI to organize a workshop on innovative, community-led approaches to address the water quality problems in Varanasi. The workshop will take place early in 2000, and we will try to attend even though we

are now based in the U.S. In the context of planning the workshop and general outreach on this issue, our activities included the following:

- Met with then minister of Environment and Forests, Sri Suresh Prabhu and encouraged his interest in the issue. Discussed with him the alternative approaches to the situation that were available and supported by the local government (Varanasi Nagar Nigam (VNN)), surrounding villages, and local activists, in particular, the Sankat Mochan Foundation, and encouraged him to visit Varanasi. The Minister agreed.
- Met again with Minister Prabhu after his visit to Varanasi and encouraged him to set up an objective, independent commission to review the situation and report. The Minister agreed and proceeded to establish the special committee. The committee concluded its review, and confirmed that progress under GAP was unsatisfactory; that the local community had not adequately been involved in the process to date; and that approaches like those suggested by the local community had much to commend them. The committee stressed that a technical and economic analysis of the two extant vying cleanup proposals is the next necessary step that must be undertaken before final decision is made to support either competing proposal. (The two competing approaches are the gravity fed/filtration pond approach supported by the local community and developed by Drs. Bill Oswald and Bailey Green of the University of California, Berkeley and an energy intensive approach designed by Mr. Duncan Mara of the UK and supported by the Uttar Pradesh Jal Nigam).
- Met with USAID/US Embassy Public Affairs Office (Embassy) and explored their potential interest in joining TERI in a partnership to further the same objectives underlying the Ford Foundation grant. USAID/Embassy have considerable expertise in this area, having funded earlier investigations into alternative approaches and supported the Sankat Mochan Foundation efforts. In addition, partnership with USAID/Embassy critical to obtaining sufficient funds for the planned workshop and required techno-economic analysis. USAID/Embassy agreed to joint effort and are now contributing sums nearly equal to those of Ford Foundation. USAID/Embassy contacted VNN to enlist their support for the workshop and to secure from VNN official copies of the vying cleanup proposals that have been under consideration. VNN does support the workshop and has now officially forwarded the requisite proposals.
- Contacted Dr. G.D. Agarwal and engaged him to undertake the techno-economic analysis recommended by Minister Prabhu's special committee. Dr. Agarwal is recognized by all parties as a leading, objective expert on water quality issues generally and the Varanasi situation in particular. When complete (in approximately 60 days), Dr. Agarwal's report will provide the central discussion document for the workshop.
- Contacted Drs. Bill Oswald and Bailey Green to ask them to write up a "plain English" (i.e., understandable to the layman) description of their system. The competing Duncan Mara technology has already been described in such an accessible form. Accessible descriptions of both such approaches will be necessary to facilitate discussion at the workshop and to ensure that the workshop will be of use to interested NGOs, governments, etc. who will be invited to join the workshop, and not just to technical experts.

- Forwarded an inquiry to Ford Foundation to clarify that Ford Foundation funds can be used for the "plain English" document and to fund the travel of Mr. Duncan Mara to come to the workshop. Mr. Mara's participation is critical to the success of the workshop. As emphasized by the Sankat Mochan Foundation as well as the Minister's special committee, an objective review of both competing technologies is necessary before proceeding with either. So, in order effectively to support the approach of the local community, the workshop must also give Mr. Mara an opportunity to defend his technology.
- Attracted the interest of NGOs and others in Bangladesh who now plan to attend the workshop.
- Attracted the interest of Delhi NGOs who are also interested in pursuing alternative sewage treatment technologies and who now plan to attend the workshop.

Much progress therefore has been made in advancing the cause of the local community in pursuing an effective method to clean up the Ganga. We feel we are on track to hold a successful workshop that can significantly raise awareness and catalyze action.

4. Mayors' Asia Pacific Environmental Summit

On February 1-3, 1999, over 400 delegates including Mayors and other local government representatives from 29 countries of the Asia-Pacific region gathered for the first Mayors' Asia-Pacific Environmental Summit, hosted by the City of Honolulu. I co-chaired the Summit with Honolulu Mayor Jeremy Harris. The preparation and planning for this project began in early 1998 when I was still with the Center for Strategic & International Studies (CSIS), and consumed a major portion of my time in the early months of my time in India.

During the Summit, participants shared their knowledge and experience on the monumental environmental challenges their cities face. They embraced the principle that cities must pursue their economic and environmental goals in an integrated way, and they committed to a series of actions to promote sustainable development in their cities and towns. U.S. Vice President Albert Gore delivered the keynote address via satellite, citing the importance of local government in fostering that economic and environmental integration

Summit participants discussed innovations in technology, policy, management, and governance that address the need to protect urban air, water, and land resources. They examined innovations applied to energy, transportation, drinking water, sewerage, and solid waste systems, and examined ways to redevelop contaminated sites, apply environmental management systems in the urban context, and better engage the private sector as a partner in sustainable development of cities. Participants also deepened their knowledge of how to finance the huge urban environmental infrastructure needs of the Asia-Pacific region, with discussions ranging from conventional development assistance to municipal bond finance to the Clean Development Mechanism.

Participants emphasized the central role of sound urban planning, with full citizen and community participation, in addressing these challenges—planning that is based on a vision of livable, sustainable communities, the best use of new technologies, and the understanding that

good environmental policy is sound economic policy. They further highlighted the need for effective devolution of powers to local government to support such planning. The participants endorsed local, national and regional efforts to promote sustainable and livable communities and affirmed the endorsement provided by national governments—at the 1992 UN Earth Summit, the 1996 UN City Summit, and other global forums—for the local planning process called "Local Agenda 21."

Various mayors and other local government officials made personal commitments to action, such as conducting a Local Agenda 21 process in their cities, improving the efficiency of their water systems, switching city buses to cleaner fuels, and launching large-scale urban forestry projects. They issued a series of recommendations to national and international bodies on ways to promote and support Local Agenda 21. Participants also asked Mayor Harris to establish the Summit as an ongoing forum and establish a Summit Secretariat. The next Mayors' Asia-Pacific Environmental Summit will be in 2001.

Following the Summit, I assembled and edited the proceedings and posted them on the CSIS web site (www.csis.org/e4e/). I then worked with the Mayor's staff to find candidates for the Executive Director of the Secretariat and to plan the follow-on activities.