PD-ABN-103
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Trade in Environmental Services & Technologies (TEST)
Quarterly Performance Report

July 20, 1996

Contractor:	Sanders International
Contract #:	386-0530-C-00-3219-00
Reporting period:	April 1 - June 30, 1996

Section I.

A. Narrative

1. Background: The primary contract final objective is the successful facilitation of at least 25 sustainable commercial linkages between U.S. and Indian firms in the environmental services and technologies sectors that contribute to enhanced environmental quality in India. In order to achieve this objective, the contract will use $20 million in project funding to stimulate promising business linkages that require financial assistance. In India, TEST's project finance component is administered and implemented through the Industrial Credit and Investment Corporation of India (ICICI).

2. Expected Results:

--Sanders International (SI) expects to meet or exceed the above-described primary contract objective. In less than three years into the four year contract, TEST has already contributed directly to the successful facilitation and/or financing of 19 business linkages of various types, seven of which have been financed using TEST funds. In addition, we have accomplished other project goals, including:

- providing accurate and timely information and technical assistance to several hundred U.S. and Indian environmental technology and service suppliers on, inter alia, Indian business opportunities, U.S. environmental technologies, Indian economic conditions and business practices, and trade and project financing information.

- establishing an environmental information system node at ICICI and contributing to the strengthening of India's environmental information network;

- organizing and executing business missions between U.S. and Indian firms;

- engendering a greater level of awareness about Indian environmental business opportunities through participation in U.S. environmental business meetings and trade events and through the dissemination of materials describing these opportunities, as well as TEST project success stories; and

- supporting ICICI's efforts to develop and strengthen India's environmental business sector in order to achieve long term improvement in India's environmental situation by facilitating and financing the transfer of appropriate environmental technologies to Indian businesses.

3a. Current Core Activities:

Technical Assistance Component

1. Contract Extension

SI had been scheduled to provide services for the technical assistance portion of the contract through June, 1997. However, on May, 1996, SI was informed that it had exceeded the Level of Effort (LOE) allowed under the contract, and that its work on the TEST contract should be wrapped up by July 31, 1996. Accordingly, Ed Sanders and Jeff Hallett traveled to India during the last week of May to develop a close out schedule for their services under TEST and to discuss possible continuation of technical assistance under alternative contractual arrangements.

Hallett and Sanders prepared, discussed and submitted to Mission officers a workplan providing a description of deliverables and level of effort for activities to be undertaken as part of the closeout of SI's technical assistance contract with the Mission. These activities will be accomplished by or prior to July 31, 1996.

Following consultations with contract officer Lenny Kata and USAID project officers, Sanders and Hallett also developed a revised scope of work for the technical assistance component of the TEST project. This scope of work explained why it was necessary for SI to use more technical assistance person months to accomplish Mission objectives for the TEST program than had been originally envisaged in the contract. This revised scope of work will form the basis of a modification in the contract.

Sanders and Hallett also prepared a workplan, level of effort and budget estimates for TEST program activities which the Mission and ICICI would like for SI to complete beginning August 1, 1996, and ending on January 31, 1997. This document has been submitted to the Mission, and it is our understanding that it will form the basis for a new contract between SI and the Mission that will take effect on August 1, 1996.

2. Indian Foundry Delegation-Follow-Up

EPR and the Agra Iron Founders Association (AIFA) concluded revisions of their Memorandum of Understanding (MOU). We successfully arranged for the shipment of the sample of foundry ash from Agra to EPR for testing at EPR's test facility. The testing began on June 27, 1996. The tests were very successful, and they resulted in very high dust collection efficiencies by the aero-dynamic module (ADM). We also discussed with the Mission and ICICI various options for financing the demonstration project under the conditional grant component of the TEST program. It is expected that a successful test of the

foundry ash by EPR will result in renewed interest by the Indian firms that had earlier expressed an interest in representing the firm and a commitment by both sides into making a deal of some sort.

During their trip to the U.S. in June, 1995, the AIFA delegates met with Don Schaeffer of Ogawa. Ogawa manufactures a low cost passive air sampling technology. Schaeffer travelled to India in May, 1996, to arrange a demonstration of this technology. (See write-up below).

3. Business Exchange Delegations/Business Collaborations

During this quarter, we completed two business exchanges and made preparations for one exchange that is scheduled to take place from July 22, 1996, to August 5, 1996.

The first business exchange that we organized was for Rakesh Khanna of Western Paques from April 3-12, 1996. This trip was funded by Western Paques and the United States Asia Environmental Partnership (US-AEP)/Institute for International Education (IIE) program. The major purpose of the visit was to meet qualified U.S. firms involved in providing integrated solid waste management services and technologies. Khanna met with several private companies, including: Applied Compost Consulting, California Waste Recovery, Medina Bioremediation Systems, WMX Technologies, McGill Environmental Systems, and Tighe and Bond. He also visited several municipal waste treatment systems in Virginia and Maryland. Khanna met with the Chairman of WMX Technologies in London and was able to secure a very positive response from him regarding a future collaboration between Western Paques and WMX Technologies.

We also made arrangements for Don Schaeffer of Ogawa to travel to India to demonstrate the capabilities of the firm's Passive Air Sampler as a low cost and appropriate way of measuring sulfur dioxide emissions around the Agra foundries and the Taj Mahal. Hallett travelled with Shaeffer to Agra where they were hosted by the AIFA. Shaeffer briefed Association members at their headquarters as well as representatives for the Uttar Pradesh Pollution Control Board (UPPCB).

Both the AIFA members and the UPCCB representatives were very impressed by the Ogawa device and its potential for Agra. Due to its simplicity, inexpensiveness and apparent appropriateness for the Indian situation, the pollution control board representatives invited Shaeffer to demonstrate one of his devices at the Taj Mahal itself. This demonstration was witnessed by the AIFA, UPCCB and USAID Mission representatives. Shaeffer indicated that Ogawa would be willing to conduct a larger scale demonstration of the air sampler in the Agra area in the future, possibly in conjunction with commercial distribution of the device in India.

Back in Delhi, Shaeffer met with a number of Indian environmental companies interested in representing Ogawa and distributing their products in India. Shaeffer has selected the Electronic Corporation of India, Ltd. (ECIL) to act as Ogawa's representative in India. ECIL

and Ogawa expect to conclude this distribution arrangement during an upcoming visit by ECIL representatives in July, 1996.

We also made preparations to schedule an exchange for three representatives of the ECIL. The purpose of their trip would be to assess air and water monitoring equipment companies. IIE is making the arrangements for the trip. The ECIL representatives are scheduled to be in the U.S. from July 22, 1996, to August 5, 1996.

4. U.S. Bio Treatment Delegation-Follow-Up

Industrial Eco-Systems (IES) and the Biotech Consortium of India Limited (BCIL) are cooperating to propose bio-remediation treatment of a Oil and Natural Gas Commission (ONGC) site in Assam. ONGC is ready and willing to go forward with this demonstration and to contribute some funding toward it. BCIL has stated that it cannot represent Industrial Ecosystems in this project; rather, it can only act as a consultant. Therefore the task now is to find a commercial entity that is interested in taking this opportunity. We had some preliminary discussions with Dr. Shriram of Nukem on this matter, and he has indicated that Nukem is keen on pursuing this project with BCIL and IES.

5. Other Activities

Joe Enders travelled to India in May, 1996, for the commissioning of the Agro-Enders Recovery System at Shreyans plant in Ahmedgarh. Enders concluded that the black liquor burned very easily and completely in the fluidized bed chemical recovery system.

We had several requests for technical search reports (TSRs) this quarter. We completed one report for Solapur Chemicals Pvt. Ltd (Solapur). Solapur was interested in finding technologies to reclaim resin-bonded sand. SI conducted a technology search for Solapur and submitted this report to ICICI in June, 1996. We understand that ICICI has forwarded this report to Solapur. We are currently working on three other TSRs, including a search for air pollution control scrubbers for Aero-Tech Engineers, an instrumentation search for Manali Petrochemicals, and a "flash recovery" evaporator search for wastewater treatment for Manali Petrochemicals.

During this quarter, we prepared a report for the Mission that provided an overview of the major financing institutions, including U.S. government agencies, multilateral institutions, and private environmental funds. The purpose of the report was to provide the Mission with information available on sources of funds for financing environmental and energy projects. During the next quarter, we will polish up this report by providing the Mission some additional information including analytical information on how projects are financed and procedures to finance projects in India.

Last quarter, EPA's Jim Smith submitted his report on his September, 1995, audit of Tamil Nadu Common Effluent Treatment Plants (CETPs). We continue to have discussions with him to determine if there are any follow up activities that we could implement as a result of Smith's report recommendations.

Information System Component

1. Environmental Events Calendar

Updated and faxed calendar to ICICI on April 12, 1996 and May 3, 1996.

2. Environmental Publications

Mailed package containing environmental publications, including newsletters, magazines, and environmental handbooks to ICICI via diplomatic pouch on May 2, 1996, and May 20, 1996.

3. Telemagic Database

SI continued to update the Telemagic Database. As of June 30, 1996, there were **1193** contacts in the database of which **388** were contacts in India.

4. Information System Development

During this quarter, we completed phase 2 of the TEST Internet Website and made preparations to design phase 3.

Jeff Hallett and Catherine Eiff made a presentation on TEST's Worldwide Web in a program entitled "Indo-U.S. Environmental Business on the Internet" on June 5, 1996 to approximately 100 people. They successfully demonstrated the TEST site's broad array of environmental resource retrieval capabilities as well as how Indian environmental businesses can take advantage of the Internet and Worldwide Web to develop environmental business opportunities with U.S. firms. This report was co-sponsored by the Federation of Indian Chambers of Commerce and Industry (FICCI). Hallett and Eiff made a similar presentation in Mumbai on June 7, 1996. This presentation was co-sponsored by the Indo-American Chamber of Commerce (IACC).

Finally, they also made a presentation of the TEST Website and emerging Internet technologies at the Department of State in Washington, D.C. on June 28, 1996.

Promotion Component

Due to the budget cutback of the TEST program, SI suspended all planned efforts on promoting the TEST program through organized conferences and trade shows. The only promotion efforts were conducted through the TEST Website.

Trade and Investment Tours Component

As a part of the budget cutback, all trade and investment tours were suspended during this quarter. The only exception was the business exchanges that were organized on a cost-share basis with IIE/US-AEP.

3b. Current buy-ins: Not applicable

3c. Subcontracting Activities:

There were no subcontracting activities this period.

4. Performance:

Contract performance was affected by the need to relocate significant resources to respond to the Mission's requests for information relating to the Level of Effort (LOE) over run issue as well as the necessity for Sanders and Hallett to travel to India to meet with the Mission to discuss close-out and proposal follow-on technical arrangements.

We also wish to note a substantial increase in the number of requests from ICICI for technical assistance.

5. Statement of Work: None

B. Administrative Information

Contract Data: Total level of effort:	84.4 p/m
Total estimated cost:	$2,217,360
1. Level of effort (last three months):	12.1 p/m
2. Cumulative level of effort:	124.9 p/m
3. Unused level of effort:	(40.5) p/m
4. Expenditures (last three months):	$189,895
5. Cumulative Expenditures to date:	$1,914,786*
6. Remaining unexpended balance:	$302,574

* The cumulative expenditures to date reflects the contract reconciliation of all invoices submitted from 7/1/93 to 5/31/96. A credit adjustment was issued to the contract due to a significant drop in SI's provisional G&A rate for 1995/1996 as shown in our NICRA dated May 21, 1996.

Section II - Project Officer's Comments

Trade in Environmental Services & Technologies (TEST)
Quarterly Performance Report

May 9, 1996

Contractor:	Sanders International
Contract #:	386-0530-C-00-3219-00
Reporting period:	January 1 - March 31, 1996

Section I.

A. Narrative

1. Background: The primary contract final objective is the successful facilitation of at least 25 sustainable commercial linkages between U.S. and Indian firms in the environmental services and technologies sectors that contribute to enhanced environmental quality in India. In order to achieve this objective, the contract will use $20 million in project funding to stimulate promising business linkages that require financial assistance. In India, TEST's project finance component is administered and implemented through the Industrial Credit and Investment Corporation of India (ICICI).

2. Expected Results:

--Sanders International (SI) expects to meet or exceed the above-described primary contract objective. In less than three years into the four year contract, TEST has already contributed directly to the successful facilitation and/or financing of 19 business linkages of various types (see attached April 1996 Status Report), seven of which have been financed using TEST funds. In addition, we have accomplished other project goals, including:

- providing accurate and timely information and technical assistance to several hundred U.S. and Indian environmental technology and service suppliers on, inter alia, Indian business opportunities, U.S. environmental technologies, Indian economic conditions and business practices, and trade and project financing information.

- establishing an environmental information system node at ICICI and contributing to the strengthening of India's environmental information network;

- organizing and executing business missions between U.S. and Indian firms;

- engendering a greater level of awareness about Indian environmental business opportunities through participation in U.S. environmental business meetings and trade events and through the dissemination of materials describing these opportunities, as well as TEST project success stories; and

- supporting ICICI's efforts to develop and strengthen India's environmental business sector in order to achieve long term improvement in India's environmental situation by facilitating and financing the transfer of appropriate environmental technologies to Indian businesses.

3a. Current Core Activities:

Technical Assistance Component

1. Indian Foundry Delegation

The Indian Foundry Delegation, which took place last year from June 10-June 23, 1995, continued to generate follow up activities.

During their U.S. visit, the Indian Foundry Delegation had met with EPR, a company that manufactures a low-cost dust particulate collection system that can be used in conjunction with a scrubber. EPR submitted a budget to the Ministry of Environment and Forests (MOEF) to request World Bank funding to demonstrate their technology in the Himalaya Foundry in Agra. The MOEF, however, indicated they were not interested in supporting this proposal, and, therefore, the USAID/Delhi Mission has decided to support the entire project under the TEST program. Currently, SI is working with the Agra Iron Founders Association (AIFA) to transport 200 lbs of sample foundry powder to the U.S. As a precondition to the demonstration project, this foundry dust will be tested on EPR's dust collection system.

Last quarter Mr. Skip White of MSI Engineering initiated a dialogue with Process and Product Development Center (PPDC). Mr. White prepared a proposal for PPDC, and made tentative plans to go to India in the early part of 1996 to meet with representatives from PPDC to discuss plans for the impending collaboration. His plans, however, were delayed during this quarter because he was waiting for PPDC to clarify a few issues for him. These issues included: information on the size of the market for pollution control device services in India; how PPDC plans to pay Mr. White for his services; and the nature of collaboration that PPDC envisions with MSI Engineering.

In November, 1995, Mr.Sunil Hangal from RTP put together a proposal to provide consulting services that would identify technologies for slag reuse, air pollution control improvements and do more work on an impact analysis of foundry pollution on the Taj. The proposal was submitted to the Agra Iron Founders Association (AIFA). Representatives from AIFA reviewed the proposal and informed SI and Mr. Hangal that the consulting fees proposed by RTP were too high. Mr. Hangal, however, has agreed to provide some of the information free of charge.

During their U.S. visit in June, representatives of the Indian Foundry met with Mr. Donald Schaeffer, President of Ogawa & Co. Ogawa is one of the leading U.S. suppliers of efficient, low-cost, and low-maintenance passive monitoring devices. The Ogawa sampler effectively monitors nitrogen oxide, nitrogen dioxide, ozone, and sulphur dioxide. Mr.

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Schaeffer and the AIFA have agreed to conduct a demonstration of the Ogawa monitor in May. In addition, during the same trip and with SI's assistance, Mr. Schaeffer will attempt to find and qualify a distributor for his product.

2. Business Exchange Delegations/Business Collaborations

SI initiated a successful dialogue with IIE/United States Asia Environmental Partnership (US-AEP to ask them to support TEST exchanges. Among the exchanges SI proposed for clearance, IIE approved travel for Mr. Kumar of Ventair and Mr. Rakesh Khanna of Western Paques.

Mr. Kumar, Chief Executive of Ventair, travelled to the U.S. from March 16 to March 29. He met with seven firms that were identified as potential partners from a technology search that SI conducted for him in Fall, 1995. Mr. Kumar's purpose was to meet potential partners for a technical collaboration in air pollution control equipment. The trip was considered very successful; in fact, Mr. Kumar is teaming up with Beltran, one of the companies he met during his trip, to bid on a project to supply wet electrostatic precipitators (ESPs) to a titanium dioxide plant in India. (The other results from Mr. Kumar's trip are provided in the attached report on Ventair's Environmental Business Exchange to U.S.)

Also, preparations were made to arrange a business exchange for Mr. Rakesh Khanna of Western Paques, which would take place from April 3-12, 1996. The major purpose of Mr. Khanna's visit would be to meet with qualified U.S. firms involved in providing integrated solid waste management technologies, equipment and services. These companies would eventually be interested in exploring the potential for collaboration with Western Paques for the further development of the Indian market for municipal solid waste management. SI set up a 10-day exchange for Mr. Khanna that included a mix of private waste management companies and municipalities.

3. U.S. Bio Treatment Delegation-Follow-Up

Synosys and its joint venture partner, Exogen, have put in place three bench scale units in industrial units around India. These units are performing extremely well and are generating data necessary to prove the technology's viability and commercial applicability in India.

In addition, Synosys has entered into discussions with NEERI to conduct a project combining Synosys'and NEERI's biological technologies to put up a bio-sulphurization unit in the Mathura Refinery for the Indian Oil Company. While this project is not directly related to the Indian foundry delegation, an innovative, low-cost pollution control project at the refinery should help reduce pollution in the Agra area. The U.S. firm, Envirogen, is working with Synosys to execute this project, and a Memorandum of Understanding between the U.S. consortium (Synosys and Envirogen) and NEERI to settle this is expected to be signed on June 5, 1996.

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Industrial Ecosystem Inc., along with Biotechnology Consortium of India, Ltd. (BCIL), has submitted a demonstration project proposal for hydrocarbon remediation to the Central Pollution Control Board.

4. Other Activities

EPA's Jim Smith submitted his report on his September 1995 audit of Tamil Nadu Common Effluent Treatment Plants (CETPs) for Indian leather tanneries which was conducted with the National Productivity Council (NPC). The report was submitted to the Mission and to the NPC.

SI worked with Mr. Joe Enders to resolve his misunderstanding with his licensee, Agro Pulping, Inc. SI also secured Mr. Ender's commitment to travel to India in June, 1996, for the commissioning of the Shreyans plant.

Information System Component

1. Environmental Events Calendar

Updated and faxed calendar to ICICI on January 10, 1996, February 7, 1996, and March 12 11, 1996.

2. Environmental Publications

Mailed package containing environmental publications, including newsletters, magazines, and environmental handbooks to ICICI via diplomatic pouch on February 12, 1996.

3. Telemagic Database

SI continued to update the Telemagic Database. As of March 31, 1996, there were a total of **1164** contacts in the database of which **366** were contacts in India.

4. Information System Development

SI completed Phase 1 of the TEST Internet Website, which was uploaded on the USAID server in January, 1996. The remainder of the quarter consisted of promoting TEST through the Website. SI prepared a TEST press release on February 20, 1996, and began a targeted program of on-line advertisement of the TEST program to various news and service group.

In addition to the general information on the TEST program, SI also made preparations to have the Confederation of Indian Industries (CII) report formatted and included in the TEST Website by April, 1996.

Finally, SI continued work on Phase 2 and Phase 3 of the TEST Internet Website.

So far, the promotion of the TEST program through the Internet has been successful. The Mission has reacted favorably to the Website and has indicated they would be interested in having this site serve as a prototype for future USAID project websites.

SI has also received several enquiries to have the TEST webpage linked to other webpages. For example, currently we are making preparations to link the TEST webpage to the web pages of BHA, an air pollution control products company, and the Global Network for Environmental Technology (GNET), a Department of Energy technology information network.

Finally, although we have not yet installed a "counter" to keep track of the enquiries we have received, we have been getting regular on-line requests about the TEST program and the services it offers.

Promotion Component

Due to the budget cutback of the TEST program, SI suspended all planned efforts on promoting the TEST program through organized conferences and trade shows. The only promotion efforts were conducted through the TEST Website.

Trade and Investment Tours Component

As a part of the budget cutback, all trade and investment tours were suspended during this quarter. The only exception was the business exchanges that were organized on a cost-share basis with IIE/US-AEP.

3b. Current buy-ins: Not applicable

3c. Subcontracting Activities:

1. SI received the VOC database from Dyncorp and is currently working on integrating this database into Telemagic and the Internet Website.

2. The Confederation of Indian Industries' (CII) first deliverable, the Environmental Management and Business Opportunities, was submitted to SI last quarter. SI edited and formatted this report, and it was released in January, 1996. At the Mission's request SI gave CII an additional $1000 to pay for the planned ceremony to release the report to the general public. The ceremony is scheduled for the end of May.

3. SI did not renew the purchase order arrangement with Tata Risk Management Service (TRMS) after its lapse in January, 1996. While the purchase order proved to be of limited utility as a means of quickly and efficiently initiating commercial dialogues between U.S. and Indian firms, the effort should result in approximately half a dozen business collaborations within the next 12-24 months.

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4. Performance:

Activities and deliverables have been proceeding according to the modified workplan that was submitted to USAID in December, 1996. The activities have been structured so as to achieve the Mission's priority objectives and conserve scarce funds. Thus, in this modified workplan, SI has focussed its priorities more tightly on deliverables (i.e. deals), and it has also concentrated on developing TEST's World Wide Web home page and the TEST information system.

SI has developed a successful relationship with IIE, the US-AEP's new business exchange coordinator. This quarter, we implemented one exchange and made arrangements to implement another exchange. In addition, we are working with IIE to secure US-AEP approval for at least two more exchanges.

We are continuing to press for priority business exchanges as well as following up on existing deals. The results, so far, have been positive. The following deals have resulted from some of the business exchanges we have sponsored in the past.

- Yankee Manufacturing, Inc. (YMI) has sold two units of its Linductor, a technology to recover and transfer spilled oil, to the Indian Coast Guard in January, 1996. YMI expects to sell eight other units to other ports in India. YMI was introduced to the Indian market by the TEST program when representatives from YMI were invited to go to India on a TEST and US-AEP sponsored trade mission.

- Ventair, one of the companies that came on a business exchange this quarter, came to the U.S. to meet with the companies identified on a TEST-sponsored technology report. The exchange led to a letter of agreement between Ventair and Beltran, a leading manufacturer of electrostatic prescipitators (ESPs).

Finally, due to the slow downs and other uncertainties regarding funding for the contract, SI's relationship with ICICI has undergone a transition that has necessitated changes in our working relationship. Whereas at the beginning of the contract, ICICI was initiating the majority of all technical assistance requests to which SI responded, due to slow downs in TEST funding for ICICI loans, SI has assumed much more responsibility for initiating and implementing technical assistance efforts in direct consultation with the Mission. ICICI TEST Group continued to want to play a controlling and proactive role. However, to date, and with highly effective Mission assistance, the tensions arising from ICICI's changing role have been managed.

Following the Mission's guidance, SI has striven to facilitate the closure of as many commercial linkages as possible between U.S. and Indian firms. In most cases, our efforts have been self-initiated and not the result of any ICICI action or involvement. Similarly, with respect to the information system and the development of TEST's Worldwide Web homepage, we have responded to the Mission's directives to move ahead with these

initiatives despite ICICI's less than full support. The problem has been exacerbated by the fact that ICICI has been able to make very few TEST loans over the past 18 months.

Upcoming plans for the planned seminars in Delhi and Bombay on "Doing Environmental Business on the Internet" have revived ICICI TEST Group's frustration over their somewhat diminished control over the project. As shared in a recent memo to the Mission, SI has endeavored to keep ICICI informed of all plans and activities with regard to TEST information system component activities, and has received little feedback from ICICI. Nevertheless, with Mission concurrence, we have pushed ahead to implement workplan goals and deliverables.

5. Statement of Work: None

B. Administrative Information

Contract Data: Total level of effort	84.4 p/m
Total estimated cost:	$2,217,360.00
1. Level of effort (last three months)	12.1 p/m
2. Cumulative level of effort	112 p/m
3. Unused level of effort	(27.6)p/m
4. Expenditures (last three months)	$147,290
5. Cumulative Expenditures to date:	$1,759,869
6. Remaining unexpended balance:	$457,491

Section II - Project Officer's Comments

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Attachment to Weekly Report

Trade in Environmental S
Status Report - April 1996

Ventures and Partnerships Formed: *The following partnerships were facilitated through technical assistance or financing from the Industrial Credit and Investment Corporation of India (ICICI):*

1) **American Air Filter International** (formerly Snyder General), Louisville, Kentucky and **Kirloskar Industries** of Pune: These two companies formed a joint-venture manufacturing plant for the production of air pollution control equipment and some wastewater treatment equipment. The total plant cost was $3,000,000 of which $1,800,000 was financed by the ICICI. AAF International owns 50% of the manufacturing plant which currently has approximately $20,000,000 in annual sales.

2) **Beltran**, New York, New York and **Ventair Private Ltd**. of Madras: These two companies are jointly bidding on the design of an air pollution control system for a Madras-based titanium dioxide plant. Beltran has provided the designs for a wet electro-static precipitator system which will be built in conjunction with Ventair. TEST provided technical assistance in introducing the two companies and is following up on the status of the project bid.

3) **Davy International** (formerly Davy McKee), San Ramon, California & **TTG Industries**, Madras: Technology transfer for the design of water-jacketed gas collection hoods from Davy International. The technology was implemented in two of Hindustani Copper's smelter plants. TEST financed $300,000 of a total project cost of $500,000 to finance the engineering and design work.

4) **Donaldson**, Minneapolis, Minnesota and **Mundratech** of New Delhi: Joint-venture for the production of gas turbine filters. TEST financed $500,000 of a total $1,000,000 project cost. The plant opened in December, 1995 in Gurgaon, just outside of Delhi. Donaldson reports that the new JV currently has annual sales of approximately $4 - $5,000,000.

5) **Enders Process Equipment**, Glen Ellyn, Illinois and **Shreyans Industries** of New Delhi: Through TEST technical assistance and financing, Enders and its local representative have erected a $4,100,000 black liquor incineration and caustic soda recovery plant at Shreyans Pulp & Paper mill in Ludhiana, Punjab. TEST provided a conditional grant of $1,000,000 to finance the demonstration of this technology.

6) **EPR**, West Springfield, Massachusetts and the **Agra Iron Founders Association** (AIFA), Agra: TEST introduced EPR to the AIFA through a 1995 Foundry Delegation to the U.S. The delegation traveled to the U.S. in search of technological solutions for pollution problems associated with small foundries located near the Taj Mahal. EPR has signed an agreement with the AIFA to demonstrate a low-cost air pollution technology for fine particulate collection from foundry emissions. TEST will finance the demonstration project at an Agra foundry.

7) Industrial EcoSystems (IES), Pacifica, California and **Biotech Consortium of India, Ltd.** (BCIL): TEST introduced IES and BCIL as part of the 1995 TEST Biotreatment Delegation to India. IES and BCIL have submitted a proposal for TEST/ World Bank financing of a demonstration project for the bioremediation of hydrocarbon-contaminated soil for a TEST initiative aimed at promoting broader understanding and awareness of U.S. biological treatment technologies.

8) Koch Membrane Systems, Wilmington, Massachusetts and **Ion Exchange** of Bombay, India: Under TEST Ion Exchange visited the U.S. Ion Exchange signed an agreement with Koch Membrane for the distribution of thin membrane technology for wastewater treatment in pulp & paper mills in India.

9) Pfaudler Inc., Rochester, New York and **Gabriel India, Ltd.** of Pawanoo in Himachal Pradesh: Gabriel purchased a vacuum evaporation system for the recovery and recycling of heavy metals from electroplating wastewater. TEST financed the deal with a loan of $200,000 for the total project cost of $300,000.

10) Pneumafil Corporation, Charlotte, North Carolina and **Inalsa/Varun Enterprises** of Jaipur: Through a combination of technical assistance and financing, the two companies signed a technology licensing agreement for the manufacture of air intake filters for gas turbines. TEST financed $400,000 of a $700,000 project for the license.

11) Radian, Denver, Colorado and **Nuchem Ltd.**, of Faridabad: As a result of TEST technical assistance and business exchange support, the two firms are collaborating in the establishment of an environmental laboratory analysis unit. This lab will service the Indian market. Radian and Nuchem are also jointly pursuing wastewater treatment projects in India.

12) Research Cottrell, Somerville, New Jersey and **Associated Cement Companies** of New Delhi: TEST financed a licensing agreement for a flow modeling technology for gas collection equipment. The total project cost was $600,000 of which TEST financed $400,000.

13) Swemco Inc., New York, New York & **Joy Environmental Technologies, Inc.**, Houston, Texas concluded deals with **TTG Industries** of Madras: Through a technology transfer from Swemco and a purchase of equipment from Joy, TTG was able to develop an air pollution system for an acid plant being built in India. The deal required financing for the gas cleaning system technology for the plant's gases, which was designed by Swemco. The deal also required the purchase of an electrostatic precipitator from Joy Environmental. The total project cost was $5,400,000 of which TEST financed $530,000.

14) Synosys, New Brunswick, New Jersey and **Exogen** of Pune: As a result of its participation in the 1995 TEST Biotreatment Delegation, Synosys has established a joint venture company with Exogen, Inc. to further develop and market its innovative bioreactor wastewater treatment systems. Synosys has provided pilot-scale units to several Indian enterprises for testing. Synosys is currently working on a project to install a bio-desulfurization unit at a major Indian oil refinery.

15) Tampella Power, Atlanta, Georgia and **Ignifluid Boilers of India, Ltd.**, Madras: TEST financed a technology of license for fluidized bed boiler systems. The total project cost was $1,500,000 for the technology license, of which TEST financed $900,000.

16) United Emission Catalysts (UEC), Canton, North Carolina and **Pradushan Controls**, of India: UEC has entered into a distribution and licensing agreement with Pradushan Controls for the sale and manufacture of certain components of catalytic converters for diesel engines. The initial order placed by Pradushan Controls was for the sale and distribution of two hundred catalytic converters for trucks and buses. With TEST technical assistance, UEC has approached the U.S. Export-Import Bank (EXIM) to finance the export of the catalytic components to India under one of EXIM's small business environmental export insurance programs.

17) U.S. Biotech, Teterboro, New Jersey and **Premier Ziba** of Delhi: With TEST technical and business exchange assistance, U.S. Biotech and Premier Ziba have concluded an agreement to distribute U.S. Biotech's bio-additives for various wastewater treatment applications in India. Premier Ziba has secured Indian government approval to import bio-treatment products into India and test and demonstrate the effectiveness of the "bugs" in India. A multi-phased planning program has been designed to use the biotechnology in India to ameliorate serious pollution problems caused by small scale industries such as: fish farming, distilleries and pulp & paper mills. The first shipment of the technology, and subsequent demonstration is scheduled for the spring of 1996.

18) Roy F. Weston, Westchester, Pennsylvania and **Ankleshwar Industrial Estate Consortium** of Ankleshwar, Gujarat: Through TEST introductions and technical assistance, the Ankleshwar Industrial Estate Consortium and the Roy Weston Corporation are collaborating in the development of an integrated waste treatment complex for the heavily polluted industrial estate. The work will include a sanitary landfill, a hazardous waste incinerator and a common effluent treatment plant. A joint proposal for a masterplan/feasibility study was recently cleared by the State of Gujarat's Pollution Control Board and the Gujarat Industrial Development Corporation.

19) Yankee Environmental, Seattle, Washington and **the Indian Coast Guard**: As a result of technical assistance from the TEST program and travel sponsorship from the U.S. Asia Environmental Partnership, the Indian Coast Guard purchased two Yankee Environmental "Linductors", each valued at $200,000. This technology is used for clean-up of oil spills through a vacuum & oil separation process. Yankee is currently pursuing an effort to establish a joint venture spill response company using the Linductor clean-up systems.

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MESSAGE: Ref: Report on Ventair's Environmental Business Exchange to U.S.

Mr. Kumar, Chief Executive of Ventair, travelled to the U.S. on a TEST/ USAEP Environmental Business Exchange during March 16 to 29. Mr. Kumar met with seven firms of interest which were identified as potential partners from the technology search report completed in the fall of 1995. We are very pleased with the results of the trip, which has already led to one tie-up with a U.S. company (Beltran), and await Mr. Kumar's full report which he will submit to IIE sometime this month. The following companies were visited, and the results are as follows:

1) Beltran: This company manufactures wet ESPs and they are very interested in a technical tie-up in India. Mr. Kumar is working with a titanium dioxide plant in India that has asked him to make a proposal for an air pollution control system for their plant. Ventair and Beltran are jointly pursuing this project. Mr. Kumar has already gone into collaboration with Beltran for the design and sale of the ESP for the bid he is preparing. While in New York, Mr. Kumar convinced Beltran to finish the designs, send them to his hotel and he is now preparing the bid for the wet ESP. Ventair is further discussing becoming the licensee for Beltran in India and other Southeast Asian markets. TEST can already claim success on this one for the collaboration on the bid for the titanium dioxide plant...

2) Advanced Industrial Technologies Corporation (AITC): This company is a small engineering technology firm that specializes in building venturi scrubber systems. Mr. Kumar met with the President of AITC in New York and had the opportunity of visiting one of this firms scrubber installations. Mr. Kumar is interested in partnering with AITC on a case-by-case basis. Ventair has designed its own scrubbers, but has not worked with venturi scrubber applications. Kumar believes there will be opportunities of bidding on projects in India, and would like to collaborate with AITC on those bids. If they bid successfully on a project, Ventair would like to license the design of prototype venturi scrubbers from AITC.

3) Air Purification Inc.: This company manufactures a device called the "Rotofilter", an air pollution filter system. The company President is very interested in licensing this technology to Ventair. Similarly, Mr. Kumar is interested in becoming their licensee, but would like to have TEST check on their client satisfaction and become more familiar with the projects that they have worked on to date. Mr. Kumar is concerned that this technology may require too much maintenance for India, and, he believes that the technology itself is very energy intensive. Therefore, he is hesitant to make a firm commitment at this time before he has had the opportunity to check on the technology and the clients of Air Purification. Nevertheless, discussions will continue between the two firms and there are good prospects for a future tie-up.

4) Eclipse Systems: This company makes only certain components for air filtration systems. This is not their main line of business, however, and they did not have any new technology that was of interest to Ventair. There is no follow-up required for this deal.

5) Emtrol: This company has a full range of air pollution control equipment, including bag houses, scrubbers, fans. The General Manager and International Sales Manager are very interested in licensing their technologies to Ventair. Similarly, Mr. Kumar is interested in becoming their licensee, or forming a partnership to become Emtrol's JV partner in India. Mr. Kumar met them twice while in New York City and had several phone conversations with them before leaving the U.S. The next step is for the GM to convince the owners of Emtrol to go into a licensing agreement in India. This may take a few months, however, the prospects are good for some sort of tie-up.

6) Nikro Industries: This company manufactures industrial air duct cleaning systems and vacuum systems for environmental applications in manufacturing plants. Again, both Ventair and Nikro are keen on a technology tie-up. Nikro, however, is a very small firm (approximately 10 individuals) and has never entered into any licensing agreement in a foreign country. They have talked with TEST and with Ventair about their great interest in some kind of partnership in India. They would like TEST's continued assistance in working out a technology tie-up, however they would like to move cautiously. This deal also has high prospects for successful completion.

7) Vanaire: This company manufactures fibreglass fans for industrial pollution control. While they have an interesting technology, Mr. Kumar does not believe that it is appropriate for India. It seems that the cost would be prohibitive for Ventair, however the technology is certainly more sophisticated than current designs which Ventair uses. While they will continue to correspond, it is unlikely that this will go further at the current time.

Summary: TEST will keep in touch with Air Purification, Emtrol, Nikro Industries, and Beltran. These four companies have the most likelihood for a successful tie-up with Ventair. Mr. Kumar is also very interested and aggressive in keeping in touch with these firms and we suspect that, other than Beltran, one or more of the other three will sign some partnership agreement with Ventair in the next few months.