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Oil Absorbent Demonstration

India
November 7-23, 1993

Prepared for:

US - ASIA ENVIRONMENTAL PARTNERSHIP

WEC

WORLD ENVIRONMENT CENTER

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I. EXECUTIVE SUMMARY

The U.S.-Asia Environmental Partnership (US-AEP), through a Cooperative Agreement (CA) with the World Environment Center (WEC) sponsored an Environmental Business Exchange (EBE) from November 7-23, 1993 for Mr. Jack T. Wallace, President and Chief Executive Officer of Absorb, Inc. to India. The prime purpose of this exchange was to determine in-country need and market potential for specialized environmental technology in the fields of petroleum and chemical industrial waste recovery and recycling, petroleum and chemical marine and land spill recovery and recycling, and absorbents and systems for agriculture waste recovery and recycling.

Secondary purposes of the exchange were to determine the potential for joint ventures and/or licensing agreements to bring such technology, for commercial application, to India; to help Absorb, Inc. gain an understanding of doing business in India and Indian business opportunities for U.S. companies and gain an understanding of Indian trade and marketing procedures.

The exchange participant found there to be a great need in India for waste management of petroleum, chemicals and dyes. Included in this need is management of waste from industrial manufacturing, and unscheduled spills and leaks from storage containers, pipelines and marine facilities. At present there exist very limited systems and capabilities in India to provide for environmentally safe waste collection, and disposal and recycling of petroleum, chemicals and dyes. There are also no products and/or systems in India for waste management in the agriculture industries. Agro waste is generated from the harvesting and processing of crops and timber, and the production and processing of poultry and animals. In most cases, the harvesting and processing of crops and timber produce only non-toxic bulk waste (paper manufacturing being the exception). However, the production and processing of poultry and animals produce an abundance of toxic waste.

Poultry production and processing is an industry of great magnitude, and lately of growth, so much so, that major foreign agro end-users are entering the Indian market. These end-users include U.S. corporations like McDonald's and Kentucky Fried Chicken (KFC). Increasing demand for agro products will cause agro waste to become an even more serious problem in the future. Both McDonalds and KFC will require greater production and quality per production unit. Given increased production and demand for quality, agro production in poultry and other agro products will require change. These changes will have include the need for bedding (absorbent litter) for poultry, not only for better production results and helping to reduce disease transmittal between poultry and poultry to humans, but also to eliminate environmental problems like ground water contamination associated with the industry.

The participant concluded that with India's abundance and diverse locations of low cost to no cost crop and timber waste for raw materials, and the abundance of low cost labor, low cost solids based agro absorbents could be manufactured in such a manner that they would be recyclable. These absorbents, after use, can be converted into new-use effective and cost efficient commercial and consumer fertilizer products. It would then be possible to both use and sell this product. The potential exists for turn over (profits) of poultry producers to increase with the use of waste management systems utilizing the above mentioned agro absorbents.

It was determined, that if the specialized environmental technology can provide for a profitable Indian operation, there would be numerous Indian companies interested in a business venture. The participant concluded that the needed waste management is available and can be provided by U.S. firms. What is then necessary is a comprehensive study to prove the feasibility of the technology for today's Indian markets and tomorrow's Indian expanding markets.

Funding for this project was provided through a Cooperative Agreement between the World Environment Center and the United States-Asia Environmental Partnership (US-AEP).

II. INTRODUCTION

The purpose of this exchange, was to introduce Indian markets to certain unique and specialized environmental technology in the fields of petroleum and chemical industrial waste recovery and recycling, petroleum and chemical marine and land spill recovery and recycling, and absorbents and systems for agriculture waste recovery and recycling. Mr. Jack T. Wallace, President and Chief Executive Officer of Absorb, Inc. traveled to India during November 7-23, 1993. Absorb, Inc. is a U.S. based corporation and developer of environmental technology. Their corporate offices are maintained at 14525 Highway 7, Suite 145, Minnetonka, Minnesota.

Central to purpose of this exchange was the introduction of Indian agencies and commercial businesses to procedures for determining in-country need and market potential for the type of environmental technology Absorb Inc. develops. In addition, attendance of the Indo-U.S. Joint Business Council meeting and the India International Trade Fair was arranged to help provide an understanding of doing business in India, India business opportunities for U.S. companies, and help gain an understanding of Indian trade and marketing procedures.

Cities in India visited by the participant included: New Delhi; Bombay; Madras; Visakhapatnam; Shreeramnagar; and Faridabad.

III. MEETINGS HELD / FACILITIES VISITED

Discussion on the topics of petroleum and chemical waste, spill recovery and recycling were held throughout the course of this exchange. The participant was able to visit a number of facilities which helped to identify potential joint venture partners. On-site visits were carried out to two manufacturing companies and to two shipping ports/harbors.

A. Petroleum and Chemical Waste and Spill Recovery and Recycling

In order for the participant to become familiar with environmental technology needs, he visited Escorts Limited, a private company with its corporate center in Faridabad and the Ferro Alloys Division of Ferro Alloys Corporation Ltd. or FACOR in Shreeram Bhavan, Tumsar. The shipping ports/harbors of Visakhapatnam and Bombay were also visited.

1. Escorts Limited (Faridabad)

Escorts Limited has international alliances in six foreign countries including Hughes Network Systems in the U.S.; four subsidiary companies, and three trusts and societies. Escorts has nearly 24,000 employees, 19 modem manufacturing facilities and a turnover exceeding Rs. 14,000 million. Escorts core sectors include agriculture, transportation, construction and telecommunications.

The Escort plant visited was Escorts Tractors Ltd. (an associate company in joint venture with Ford Tractors)located in Faridabad. No detailed information regarding the plants manufacturing operations were obtainable. However, the plant tools and manufactures tractors, covers many acres and employs several thousand workers.

The plant visit was arranged by Mr. Mohan M. Phadke, Vice President, Fibre Division, The Thapar Group (New Delhi). The Escort contact person was Mr. A. P. Gandhi, Vice President, Manufacturing Operations, Tractor Division. Mr. Gandbi is also a Director of Escorts Glass Ltd. (a subsidiary co v in joint venture with Harvester Combines in Germany).

2. Ferro Alloys Division of Ferro Alloys Corporation Ltd. (FACOR) (Shreeramnagar)

FACOR's chief officers are: Mr. R. K. Saraf, Chairman; and Mr. Ashish Saraf, President. FACOR has four divisions and one subsidiary company. FACOR has five manufacturing plant operations through out India producing carbon steels, silico manganese steels, low alloy steels, various stainless steels, and ferro alloy of manganese, chromium and silicon. In addition, FACOR has ore mines and operations of synthetic yarns. FACOR is involved with social and welfare operations including schools, colleges, medical clinics and hospitals, and homes for the aged.

Current production and financial information regarding FACOR was not obtained during visit, however, during the late 1980's FACOR was the nation's largest producer and exporter of ferro alloys and had net sales of Rs. 1,374 million of which Rs. 1,174 million was domestic sales and Rs. 200 million was export sales. Employee information indicates over 10,000 employed.

The FACOR plant visited was the Ferro Chrome plant at Shreeramnagar. The plant is one of two ferro alloy plants located at Shreeramnagar. The other plant is the Ferro Manganese plant. Ferro alloys are the essential raw materials for the production of steel with varied properties for different applications. The Ferro Chrome Plant has one 12000 KVA open rotating submerged arc electric furnace; one 16000 KVA stationary submerged arc electric Furnace for High Carbon Ferro Chrome, Silico Chrome and Ferro Silicon; two 8000 KVA open electric arc furnaces for Low and Extra Low Carbon Ferro Chrome; and recently installed state-of-the-art large generator systems from Germany.

The plant visit was arranged by Mr. Ashish Saraf, President, and conducted by Mr. V. V. N. Murty, M.A., Personal Assistant to the President; Mr. Lakkaraju, Dy. Manager; and, Mr. A. S. N. Murthy, Public Relations Officer.

3. Port of Visakhapatnam

The Visakhapatnam port contributes to 41 per cent of the international trade of India. It was judged the "best port of the nation" in 1989 and continues to hold the position with a record handling of 21.52 million tons of traffic in 1991-1992.

The port is located almost midway between Madras and Calcutta. Its attributes, a high promonotory into the sea to the south of the channel known as the Dolphin's Nose Hill and the Ross Hill to the North of the entrance channel, affords protection from cyclones which strike the east coast regularly. The port was commissioned in 1933 and planned development began in 1951. The port is the first levy free port in India.

The average annual growth rate is 15 per cent in productivity per berth day for non-mechanized cargos. Its areas of highest production include traffic in manganese ore, fertilizers and fertilizer raw materials, scrap and general scrap cargo. In 1991-1992 the port handled 3 million tons of coking coal for Visakhapatnam steel plants; and expanded its general cargo capacity to 8 million tons.

4. Port of Bombay

A scheduled tour was conducted, but no information like that obtained from the Visakhapatnam port tour was available.

Findings:

The Indian government and Indian companies agree there is a need for better management of petroleum and chemical waste. The major deterrent is costs and who will pay the costs.

The cost concern is valid. Many small Indian companies with low turn over (profits) would find it impossible to acquire additional costs and remain in business. However, there are larger more profitable companies that could tolerate environmental cleanup costs, and, as industrial growth advances environmental costs could be slowly incorporated into all companies' operation costs. If industry does not initiate its own environmental cleanup program, the government will have to initiate it for them. The key seems to be the need for inexpensive means of cleanup that is affordable to the larger companies, who, by their nature and size are the major polluters.

The other factor is the unavailability of cleanup products and systems in India. If products and systems were available, at an affordable cost, large and possibly medium and small companies would install such products and systems. Given India's adversity to imports, environmental products and systems would have to be developed and manufactured in India to have any chance of a low cost.

B. Agro Absorbents and Waste Products Recycling

The findings were through discussions held with companies and agencies during meetings to determine potential joint venture partners and potential financial assistance.

In the recent past, there were no deterrents regarding agro environmental concerns. That is now changing. The change is due to major agro end-users entering the Indian market. These end-users include McDonalds and KFC of the United States. Traditionally there was little concern for the size and production units per a given production sized area. With the exception of a few major agro operations, agro operations was a cottage industry and cooped. If the poultry produced in India were of lessor size and produced lessor product per unit, it was of no great concern and there was no urgent need for change. And, if there was concern, there were no products or systems to provide for change.

Both McDonalds and KFC will require greater production and quality per production unit. Both companies have so indicated to the Indian press. Given increased production and request for quality, agro production in poultry and other agro products will require change. These changes will include a bedding (absorbent) for poultry, not only for better production results and helping to reduce disease transmittal between poultry and poultry to humans, but to help eliminate the environmental problems of poultry waste contaminating the ground and ground water.

Given low profit margins per production units of agro products, ago absorbents and waste control systems must be created and manufacture within India for India. Another consideration is that while in the United States wood is used as an agro-absorbent for poultry, in India this is not possible due to the limits of forest harvest. A different source of raw material for absorbents will have to be determined.

C. Potential Joint Ventures or Licensing Agreements

Meetings were arranged by ICG-New Delhi and Madras Consultancy Group. In addition to meetings with Indian companies, information was obtained from attending meetings of the U.S. India Joint Business Council and the U.S. Indo Chamber of Commerce, and discussion with Indian participants; meetings with Indian agencies and agency/companies such as United States Agency for International Development (USAID), The Industrial Credit & Investment Corporation of India Ltd. (ICICI), and the Confederation of Indian Industry (CII).

The majority of Indian companies saw a need in India for all products and systems like those of Absorb, Inc. Most also indicated that the need to expand rapidly over the next several years makes advanced environmental technology necessary due to increasing governmental regulations. Presently, there are no products and systems in India to fill this need.

The major question asked by the Indian companies was: What is the market today? This question was not relating to their perceived need for Absorb's products and systems, nor the potential for future demand. The question relates to the present profit potential. Indian companies are most concerned with maintaining and increasing their present rate of turn over (profits), and are not eager to reduce that rate for environmental reasons, and at present, few companies are being forced to restructure their operations for environmental reasons. Two situations are occurring in India that will cause change:

1. The Indian governments will provide requirements that demand companies with the ability to pay to adhere to environmental cleanup.

2. New companies entering India from foreign countries, as foreign units or in venture with Indian companies, will be required to adhere to environmental cleanup or the companies will not receive permits to operate in india.

IV. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are presented according to the following issues: petroleum and chemical waste and spill recovery and recycling; Agro waste collection and recycling; and potential for joint ventures and/or licensing agreements. Appendix G contains cost and payback information and an implementation plan and schedule for conclusions and recommendations, respectively.

A. Petroleum and Chemical Waste and Spill Recovery and Recycling

Conclusions:

There is a great need in India for waste management of petroleum, chemicals and dyes. This includes waste from industrial manufacturing, and unscheduled spills and leaks from storage containers, pipelines and marine facilities. At present there are very limited systems and capabilities in India to provide for environmentally safe petroleum, chemicals and dyes waste collection, disposal and recycling.

The major waste producers are the major industrial companies. Low cost products and systems need to be developed for these companies' usage. The products and systems must be developed and be operative utilizing low cost raw materials. India has the raw materials: An abundance of low cost labor, and an abundance of low cost to no cost waste agro fibers.

Recommendations:

There are no no-cost solutions that can be recommended. What needs to occur are solutions that begin with low costs and provide for increased costs as India's increasing development can afford.

The recommendation is to install waste management systems that rely heavily on labor, and absorbent products/systems that are produced from waste agro fibers; provide for the recycling of collected waste into new-use commercial products for sale and use; and, provide for efficient disposal of waste that, due to its nature, cannot be recycled. If this is installed, India can begin effective and cost efficient waste management of petroleum, chemicals and dyes.

B. Agro Absorbants and Waste Products Recycling

Conclusions:

There are no current products and/or systems in place in India for waste management in the agriculture industries. Agro waste is generated from the harvesting and

processing of crops and limber, and the production and processing of poultry and animals. While in most cases, the harvesting and processing of crops and timber produce only non-toxic bulk waste (paper manufacturing is an exception), the production and processing of poultry and animals do produce an abundance of toxic waste.

In India, poultry production and processing is of magnitude and is on an upscale. One has only to look to the state of Arkansas in the United States for an illustration of how polluting and toxic is poultry production and processing. Estimates are that most of Arkansas' rivers are polluted due to poultry production and no waste management.

As India's population continues to grow and new Indian companies evolve and new foreign companies enter the Indian market, increased demand for agro products will cause agro waste to become an even more serious problem than it is currently. Given India's abundance and diverse locations of low cost to no cost crop and timber waste for raw materials, and the abundance of low cost labor, low cost solids based recyclable agro absorbents could be manufactured.

The potential exists for the bottom line costs to poultry producers in the use of waste management systems utilizing the above described agro absorbents to be decreased and turn over (profits) to increase. This is due to the increased poultry unit (one bird) quality/weight and decreased diseased/dead poultry unit by utilizing an effective and cost efficient absorbent bedding (litter) in poultry barns and growing areas. This would be especially true for major poultry producers with numerous production barns/areas within one production facility.

Recommendations:

Utilize the abundance of low cost to no cost crop and timber harvesting and processing waste as a raw material for the production of low cost solid based absorbents for the control of poultry and animal production and processing waste. And, produce the sold based absorbents such that they are recyclable, after use, into new-use effective and cost efficient commercial fertilizer products for sale and use.

C. Potential Joint Ventures or Licensing Agreements

Conclusions:

The potential is excellent for possible joint ventures (JV). The potential for licensing agreements is quite good. Given that Absorb, Inc.'s technology is new and that constant advances in the technology will occur, most Indian companies conferred with expressed concern with regards to a licensing agreement. Their concern was that if Absorb, Inc. was not totally involved with an Indian company, as it would be in a JV, Absorb, Inc. may not provide an Indian company with the expertise and technology advancements required. Indian companies and governments recognize the need for the types of waste

management Absorb, Inc.'s technology proposes. The major question is can Absorb's technology be profitably installed in India today or will further Indian economic development and Indian commercial advancements be required. If Absorb, Inc.'s technology can provide for a profitable India operation today, numerous Indian companies expressed serious interest in a business venture. While it may be a small startup, and certain more advanced products and systems may not be introduced until the second or third year of operations, Absorb, Inc. believes its technology can provide for a profitable operation in India.

Recommendation:

Provide for a comprehensive study to prove the feasibility of Absorb, Inc.'s technology for today's India markets and tomorrow's India expanding markets.

APPENDIX A

Photographs

A. LISTING OF PHOTOGRAPHS

[Note: Original photographs are provided as a detached exhibit to this report for WEC use.]

The JBC meeting held in New Delhi, India at the Maurya Sheraton, January 9 -10, 1993.

The JBC meeting held in New Delhi, India at the Maurya Sheraton, January 9 -10, 1993.

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APPENDIX B

Itinerary

ITINERARY

COMMERCIAL AND AGENCY FACILITIES VISITED

Day / Date		Location	Facility
Tuesday	Nov 9	New Delhi	US - India Joint Business Council .
Wednesday	Nov 10	New Delhi	US - India Joint business Council .
Thursday	Nov 11	New Delhi	US - Indo Chamber of Commerce .
Friday	Nov 12	New Delhi	United States Agency for International Development (USAID).
Sunday	Nov 14	Bombay	Harbors and seaports.
Tuesday	Nov 16	Bombay	The Industrial Credit & Investment Corporation of India (ICICI).
Wednesday	Nov 17	Shreeramnagar	Ferro Alloys Division manufacturing plants, Ferro Alloys Corporation Ltd. (FACOR).
"	"	Visakhapatnam	Harbors and seaports.
Friday	Nov 19	New Delhi	India International Trade Fair.
Saturday	Nov 20	Faridabad	Escorts Ltd. Tractor manufacturing plants.

B.2. ITINERARY

PERSONS AND ORGANIZATIONS VISITED

Day / Date		Location	Major Persons and Organizations
Tuesday	Nov 9	New Delhi	US-India Joint Business Council Meeting.
			Mr. Stacy Standley, General Manager, India, ICG-New Delhi.
			Mr. S. K. Mukherjee, Vice President, Corporate Development, J. K. Organization.
			Mr. S. H. Shankar Singhania, Chairman, J. K. Organization.
Wednesday	Nov 10	New Delhi	US- India Joint business Council Meeting.
			Mr. M. Satish, New Delhi Bureau, The Economic Times.
			Dr. Surinder Kapur, Chairman/Managing Director, Sona Steering Systems Ltd., and Chairman of the Confederation of Indian Industry (CII).
Thursday	Nov 11	New Delhi	US Indo Chamber of Commerce Meeting.
			Mr. Deepak Pahwa, President, Bry-Air (India) Pvt. Ltd.
			Mr. Nanda Gadgil, Vice Chairman, Western India Group.
			Mr. S. S. Kanwar, Vice Chairman, Raunaq Enterprises.
			Mr. S. Sen, Senior Director, CII.
			Mr Piyush Bahl, Regional Director, Northern Region, CII.
			Mr. H. L. Somani, Executive Vice President, Madhya Bharat Papers Ltd.

Day / Date		Location	Major Persons and Organizations, continued
Friday	Nov 12	New Delhi	Mr. Amitabha Ray, Chief, Environment & Energy Division, United States Agency for International Development, (USAID).
			Mr. Dick Goldman, Director, USAID.
			Ms. Joanne M. H. Jones, Technical Program Coordinator, U.S. Asia Environmental Partnership, (USAEP) [Brief Introduction]
			Mr. Stacy Standley, Managing Director, ICG-New Delhi.
			Mr. H. L. Somani, Executive Vice President, Madhya Bharat Papers Ltd.
			Mr. Kumar Jajodia, Zenith Overseas Pvt. Ltd.
Monday	Nov 15	Madras	Mr. G. Shanker, President, Madras Consultancy Group.
			Mr. S. R. Ramakrishman, Joint General Manager, Corporate Planning, Southern Petrochemicals Industrial Corporation.
			Mr. B. Sridhar, Director, Sacede Engineers and Consultants.
			Mr. T. Subrahmanyam, Director and President, EIMCO-KCP.
			Mr. N. V. Rajagopalan, Dy. General Manager, EIMCO-KCP.
			Mr. G. Vijayaraghavan, Dy. Manager, Sales, EIMCO-KCP.
Tuesday	Nov 16	Bombay	Mr. K. Harinathan, Manager, TEST Program, The Industrial Credit & Investment Corporation of India (ICICI).
			Mr. Girish R. Mahajan, TEST Program, ICICI.
Wednesday	Nov 17	Visakhapatnam	Mr. R. K. Saraf, Chairman, Ferro Alloys Corporation Ltd. (FACOR).
			Mr. Ashish Saraf, President, FACOR.
			Mr. V. V. N. Murty, Personal Assistant to the President, FACOR.

Day / Date		Location	Major Persons and Organizations, continued
Wednesday Continued	Nov 17	Visakhapatnam	Mr. G. Raghunathan, General Manager, Hindustan Petroleum Corp Ltd.
			Captain P. B. S. Patnaik, Marine Consultant, Robi & Co.
		Shreeramnagar	Mr. L. N. Muarthy, Dy. Manager, Ferro Alloys Division, FACOR.
			Mr. A. S. N. Murthy, Public Relations Officer, FACOR.
Friday	Nov 19	New Delhi	Mr. Stacey Standley, Managing Director, ICG-New Delhi.
			India International Trade Fair.
			Mr. L. M. Thapar, Chairman, The Thapar Group.
			Mr. Mohan M. Phadke, Vice President, Fibre Division, The Thapar Group.
Saturday	Nov 20	Faridabad	Mr. A. P. Gandhi, Director, Escorts Class Ltd.
Sunday	Nov 21	New Delhi	Mr. Stacey Standley, Managing Director, ICG-New Delhi.
			Mr. A. P. Gandhi, Director, Escorts Class Ltd.
			Mr. G. Shanker, President, Madras Consultancy Group.
			Other Persons and Organizations
Tuesday - Thursday	Nov 9 - 11	New Delhi	Prof. S. Sitaraman, Executive Director, Overseas Construction Council of India (OCCI).
			Mr. P. M. A. Hakeem, Managing Director, The State Industrial and Investment Corporation of Maharashtra Ltd. (SICOM).
			Mr. Bansi Dhar, President, Federation of Indian Chambers of Commerce & Industry.
			Mr. Paul Griesse, Chairman, US India Joint Business Council.
			Mr. Fay Kumar Jajodia, Chairman, India-Denmark Joint Business Council.

Day / Date		Location	Other Persons and Organizations, continued
Tuesday - Thursday Continued	Nov 9 - 11	New Delhi	Mr. Rajan V. Vembu, President, India-Wisconsin Business Council.
			Mr. G. D. Gaurama, Executive Director, West Bengal Industrial Development Corporation Ltd.
			Mr. R. Murlidhar Rao, Vice President, Chemical Bank (India).
			Mr. Lalit Ahluwalia, Arthur Anderson, (India).
			Mr. Ashwani Puri, Partner, Price Waterhouse & Co. (India)
			Mr. Vinod Chandiok, Walker, Chandoik & Co., Grant Thornton International (India).
			Mr. Jack L. Dillon, Vice President, General Tire (USA).
			Mr. S. M. Gupta, Director of Offshore Operations, ASEAN Region, IBM (Singapore).
			Mr. Robert W. Brimberry, President, Dresser Industries (USA).
			Mr. Kevin R. Lindquist, Technical Programs Engineer, Donaldson Company, Inc. (USA)
			Mr. Varghese R. George, President & CEO, WESTEX International, Inc. (USA).
			Mr. Mohan S. Hundal, Director, General Electric Mech. Co. Ltd. (London).
			Mr. Kris Kudrnac, President, K3 Corp. (USA).
			Mr. Christian L. Lint, President, Yankee Manufacturing, Inc. (USA).
			Ms. Catherine A. Chef, President, CAC International, Inc. (USA).
			Mr. Wilfred W. Hamrum, CEO, Vision Earth Communications Pvt. Ltd. (USA & India)
			Mr. Ganesh Natarajan, Attorney, Gardner & Douglas, (USA)

APPENDIX C

Documents Received

LIST OF DOCUMENTS RECEIVED

U.S.-India Joint Business Council business meeting manual
U.S.-India Joint Business Council Indian Delegation listing brochure
Indo-American Chamber of Comerce brochure
Kerala, India state presentation brochure
Haryana, India state presentation brochure
Tamil Nadu Industrial Bureau brochure
Uttar Pradesh, India presentation brochure
Escorts Limited Company brochure
Ferro Alloys Corporation Limited company brochure
Sarankyo Electronic Limited company brochure
Pinsel Computer Products company handout
The Eimco-K.C.P. Ltd. company brochure
Southern Petrochemical Industries Corporation Ltd. company brochure
Sacede Engineers & Consultants Pte. Ltd. company brochure
Pai & Pai Chemicals (I) Pvt. Ltd. company brochure
Zenith Overseas Private Limited company handout
Western India Group company brochure

APPENDIX D

CONTACTS

APPENDICES

D. BUSINESS CARDS (copies) OF PERSONS CONTACTED

INDIAN COMPANY MEETINGS (Potential Partners)

Bry-Air

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APPENDIX E

NEWSPAPER ARTICLES

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E. NEWSPAPER ARTICLES

Below are copies of two newspaper articles that appeared in India's The Economic Times.

US waste recycling machine maker scouts for partners

M Satish

NEW DELHI 11 NOVEMBER

AB.SORB Inc, a US company specialising in environmental and pollution control technology, has decided to set up a joint venture in India to manufacture equipment for recycling of waste from agriculture and industrial units, and also petrochemical spill recovery systems.

The president and chief executive officer of Ab.sorb, Mr Jack T Wallace, is currently in India and during the next two weeks will visit Bombay, Madras and Calcutta to hold preliminary discussions with Indian companies.

It is learnt that among those who evinced interest in such a venture is Ballarpur Industries Ltd (BIL), to manufacture equipment relating to recycling of waste generated in the manufacture of paper.

The US company is interested in an initial investment of between $3 and $10 million. Although that would seem small, it the first time that Ab.sorb is venturing outside the US, Mr Wallace told *The Economic Times*.

Feasibility studies had been conducted by the company in Saudi Arabia and the Pacific rim countries, but the markets were not found to be viable.

The company hopes that a joint venture, when finalised, could avail of the $20-million line of credit available with the Industrial Credit and Investment Corporation of India (ICICI) from multilateral institutions for environmental protection.

The Texas-based company also specialises in technology involved in the cleaning up of oil spills. While it is too early to say, a location close to Bombay High for the joint venture is also an option with the company.

According to Mr Wallace, the efficiency of the systems that his company wanted to manufacture in India was 100 per cent.

India, Mr Wallace remarked, is an land of enormous opportunities. The primary thing is that the Indian government has been inviting investment in the area of environmental clean-up accepting that profit should be a motive, he said.

This was unlike in the US where the government mandated compulsory 25 or 50 per cent recycling of industrial waste without resolving the basic problem of who would finance the huge costs.

Kentucky Fried to invest $ 40 m in Indian subsidiary

Our New Delhi Bureau

NEW DELHI 19 NOVEMBER

THE WORLD'S largest chicken restaurant system, Kentucky Fried Chicken (KFC), a division of Pepsico, is planning to invest $ 40 million in its 100 per cent wholly-owned company in India. The investment will be made over the next seven years of its operation.

According to the KFC Asia/Pacific president, Mr Tim Lane, the company decided to start its operations in India following the success of its products in other parts of the region, most notably Malaysia, Indonesia, Korea, Thailand and China.

Mr Lane said: "the universal appeal of our chicken-based products ensures that the KFC will continue to grow throughout the region." The proposed wholly owned subsidiary would manage and coordinate the restaurants. It would also enter into joint ventures with Indian companies and eventually award franchise to Indian entrepreneurs.

In the beginning, the KFC restaurants would be set up in New Delhi, Bombay, Calcutta, Madras, Hyderabad and Bangalore. The KFC operates nearly 9,000 restaurants in 68 countries across the world.

Founded in Louisville Kentucky by Colonel Harland Sanders who was one of the pioneers in the fast food service industry.

APPENDIX F

CURICULUM VITAE

APPENDICES

F. CURRICULUM VITAE

Jack T. Wallace
President & Chief Executive Officer
Ab.sorb, Inc.

Mr. Wallace is co-founder of Ab.sorb, Inc. and co-developer of the Company's products and systems. Mr. Wallace is acting Chairman of the Board of Directors for the Company.

Mr. Wallace was formally educated at the University of Arizona and Arizona State University. Attendance at the universities was segmented from January 1960 through June 1971.

From January 1960 through June 1963 attendance was at the University of Arizona. Academic studies at the University of Arizona included pre-law through the college of Liberal Arts. From August 1968 through June 1971 his studies resumed full time at Arizona State University. His academic major was changed to the College of Business Administration. Mr. Wallace earned a Bachelor of Science in Economics. Minor and graduate studies included Finance, Accounting, Business Management, Mathematics, Logic, Science, Chemistry, and Liberal Arts studies including Speech, Drama, Religions, Philosophy and English.

Mr. Wallace served in the Arizona Air National Guard (ANG) from 1958 through 1972. He was initially assigned to the Medical Corps and reached Staff Sergeant rank in 1962. During a six month period in 1961 Mr. Wallace took leave from his university study programs to assist the Arizona Air National Guard during the Cuban Crisis. For his activities and service, Mr. Wallace received the national nomination as Airman Of The Year.

He was appointed a Direct Commission as Second Lieutenant in 1965, after achieving one of the highest national AFOQT scores (94%+), and attended USAF Flight School. He was assigned duty in Vietnam and reached the level of Flight Instructor. Mr. Wallace's grade upon leaving the ANG in 1972 was that of Captain. His military service continued in the non-active reserve until 1986.

In 1971, upon completing his studies at Arizona State University, Mr. Wallace became Managing Director of a private sales training college, STI, in Arizona. His accomplishments at the college included developing a training program for retired military personnel to enter the business world in sales and marketing. This program was, at that time, the only know program of its type to be accepted, accredited and funded by the federal government. In addition, he worked with federal funded rehabilitation and job-training programs involving minorities. Prior to leaving the college Mr. Wallace was developing a training program with the cooperation of state agencies in Arizona that provided training and job placement for individuals leaving Arizona's state and federal prisons.

In September of 1972, Mr. Wallace accepted the position of Company Trainer with Hughes Airwest

Airlines in San Francisco, California. During his two year tenure with Hughes Airwest (Summa Corporation), he rose to the position of Director of Employee Selection and Development. His activities at Hughes Airwest included working with the graduate schools of California universities in developing training and compensation incentive programs for non-commission sales agents in the Airline Industry and Travel Industry; researching and preparing labor negotiations; the hiring and training (non-pilot) of all company personnel including Flight Attendants; directing the OSHA compliance programs; directing the company's medical facilities; and, assisting the Marketing Department in developing new and innovative promotions.

The marketing promotions included the "Sundance Kids" Flight Attendants which Mr. Wallace personally hired. These 24 Flight Attendants were trained to be Flight Attendants as well as trained to become the first and only known Flight Attendants to-date to be a Las Vegas/Broadway type musical review. Hughes Airwest was opening new routes into Canada and Mexico, and Mr. Hughes wanted a "big show" for the Calvary Stampede in Canada to "Kick-off" his new routes. Mr. Wallace, with the assistance of the choreographer of the Harry Belefonte show in Las Vegas, whom Mr. Wallace hired as a Flight Attendant, scored and choreographed the review. Mr. Wallace produced and directed the review.

Mr. Wallace was targeted for the position of Vice President of Marketing, a position which was second in command of the Airlines.

Under direction of the Hughes organization, Mr. Wallace left Hughes Airwest in September of 1974 to begin a career in private corporate development consulting. His private clients included a member of Hughes organization.

In November 1975, Mr. Wallace had completed his contracts and relocated his consulting company to Minneapolis, Minnesota.

In March 1989, Mr. Wallace was introduced to Mr. Wayne Aronson, inventor of the Ab.sorb, Inc.'s product lines. Ab.sorb, Inc. was incorporated July 1989. Mr. Wallace assumed the position of President and CEO in November 1989.

F. AB.SORB, INC. CORPORATE BRIEF

THE COMPANY

General.

Ab.sorb, Inc., a Minnesota corporation (the Company), was incorporated in July 1989, for the purpose o: developing, manufacturing and marketing a wide range of environmentally safe proprietary products anc systems that absorb, collect, reclaim, and provide for environmentally safe disposal of various agricultural industrial and consumer generated wastes including waste oil and chemicals, and unscheduled discharge: and spills of oil and chemicals. All products and systems are designed to provide for total generatior recycling of non-toxic substances.

The Company's current operations are comprised of two divisions: Ab.sorb, Inc. Petro/Chem Spill Recovery Systems Division, and Ab.sorb, Inc. Products Manufacturing Division.

Ab.sorb, Inc.'s Petro/Chem Spill Recovery Systems Division function is the development, manufacturing, marketing and deployment of equipment and systems for oil and chemical spill retrieval, cleanup and reclamation. Ab.sorb, Inc.'s Products Manufacturing Division function is the development, manufacturing and marketing of the Company's absorbent products.

Organization/Ownership.

The Company is organized under Subchapter S of the Internal Revenue code and the corresponding Minnesota state stature. All current shareholders and investors of the Company are citizens of the United States of America.

Mr. Jack T. Wallace is the Company's president and chief executive officer. Mr. Wallace holds 54.11% of the Company's issued stock.

All rights to the technology and patents pertaining to the Company's products, systems, and methods of manufacturing are held by the Company.

Corporate Reference.

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Registered office address:	14525 Highway 7, Suite 145, Minnetonka, Minnesota 55345, USA.
Principle executive office address:	14525 Highway 7, Suite 145, Minnetonka, Minnesota 55345, USA.

State of Minnesota corporate charter number: 6J-326

APPENDIX G

COST AND PAYBACK INFORMATION

COST AND PAYBACK INFORMATION

Estimates of the costs, i.e., capital, operating, maintenance, etc., of implementing the recommendations are difficult to project without completion of a feasibility and market study. The payback estimates -- savings in raw materials, water, energy, pollution fees, etc. -- are perhaps more difficult to project without a study because in most cases there are no products and systems in use to provide benchmarks. One manner of consideration is the cost of not taking action today, and the future payback if action is taken today.

The discussion below provides Absorb, Inc.'s best-effort overview of relative costs/savings.

Petroleum and Chemical Waste and Spill Recovery and Recycling

Increased costs, on an escalating increased cost curve, will be borne by those mandated to clean up polluted waters and land surfaces if Indian companies do not take action regarding environmental safe containment, collection, and disposal of petroleum, chemical and dye waste. In addition, the transfer of cleanup costs to others, such as water pollution cleanup costs, could eventually promote higher utility costs to the original polluting companies. The net result, over time, will be increased costs for today's polluting companies. Given, that costs of pollution cleanup is much greater than pollution prevention, money spent today by companies could save them money tomorrow.

Raw material needs for cleanup products and systems could involve recycling of other waste products, and a major percent of the industrial waste collected may be able to be recycled for re-use or new-use products. In addition, the products manufacturing and cleanup systems could be structured to be either equipment/energy intensive or labor intensive (the ratio could range from 8:2 equipment:labor to 9:1 labor:equipment). These factors provide for the opportunity to structure operation locations and costs to maximize cost efficiencies, and be able to transfer costs or savings to those factors/companies that can best afford the costs or require the savings.

Much the same thinking relates to oil and chemical cleanup involving spills and leaks from storage containers, pipelines and marine facilities. A major difference is that presently a certain amount of cleanup is occurring related to oil and chemical spills and leaks. A more effective and cost efficient product(s) and system(s) may help provide for cleanup expansion to spills and leaks that are presently going unattended, a savings to the environment today, and a savings of the increased costs of cleanup tomorrow.

If India and Indian companies want to begin expanding the cleanup of petroleum, chemicals and dyes, Absorb, Inc. believes products and systems can be provided from Indian raw materials and recycled waste at a cost that can be borne by India and Indian companies. Absorb, Inc. also believes required equipment can be obtained from Indian sources including the use of recycled/modified used equipment. Sites for manufacturing operations presently exist by using excess space from certain Indian manufacturing operations.

The initial (first-year) costs to open such operations in India are difficult to project until the initial size of the markets are determined. An educated guess of the first year set up costs is between US$ 3 million, for only industrial cleanup/recycling, to US$ 10 million with spills and leaks cleanup/recycling.

Agro Waste Collection and Recycling

At present there few products and systems in India for agro waste collection and recycling, therefore, costs savings from present in-use products and systems can not be projected. However, Absorb, Inc. believes the use of agro absorbents, especially by poultry producers and processors, will provide a net savings per poultry unit (one bird) by helping to reduce diseased/dead poultry units and increase poultry unit size and weight, and helping to reduce the time for poultry grow-out (time to maturity). This could provide for a net savings to a company over and above the cost of the agro absorbents, provided the agro absorbents are priced right. Absorb, Inc. believes agro absorbents can be priced right.

Agro absorbents could be manufactured from no cost to low cost waste crop fibers found in India. The manufacturing operations and installation of the absorbents could be equipment/energy intensive or labor intensive (the ratio could range from 9:1 equipment:labor to 8:2 labor:equipment). The used ago absorbents could be collected and processed into low cost fertilizers and soil amendments for sale to commercial end--users and for home garden/plant usage. These factors, as with industrial absorbents, provide for the opportunity to structure operation locations and costs to maximize cost efficiencies, and be able to transfer costs or savings to that factor that can best afford the costs or require the savings.

Absorb, Inc. believes required equipment can be obtained from Indian sources including the use of recycled/modified used equipment. Sites for manufacturing operations presently exist by using excess space from certain Indian manufacturing operations. Required labor is mostly unskilled, and absorbent product raw materials are available in India.

The initial (first-year) costs to open such operations in India are difficult to project until the initial size of the markets are determined. Approximate costs of first year set up costs is between US$ 3 Million to US$ 7 Million.

Absorb, Inc. Joint Ventures and/or Licensing Agreements

The first step in determining costs for Absorb, Inc. to bring its technology to India, and determining required financial arrangements for joint ventures and/or licensing agreements, is the completion of a feasibility and market study. While it is possible for Absorb, Inc. to secure a joint venture partner prior to a feasibility and market study being completed, the study will have to be completed regardless.

Time estimate for the study findings is 90 days. Research will be required in the USA and India, most of which will be in India.

Preliminary cost estimates for the study are between US$ 200,000 and US$ 250,000. If an Indian partner is obtained to assist Absorb, Inc. with the study, total study costs could be reduced due to the Indian partner's familiarity of India and contacts, and that Absorb, Inc. personnel may not be required full-time in India. With an Indian partner, Absorb, Inc.'s share of the costs could be US$ 60,000 to US$ 100,000.

APPENDIX H

IMPLEMENTATION PLAN AND SCHEDULE

IMPLEMENTATION PLAN AND SCHEDULE

The implementation plan and steps involve two separate issues: The steps and time lines to be followed by end-users of Absorb, Inc.'s recommendations for implementation and the steps and time lines for Absorb, Inc. to provide these end-users with the recommended products and systems.

A. In-country End-users

Absorb, Inc. has developed its products and system such that little to no changes in present operating procedures are required by end-users. The products and services proposed to be provided are "turn-key" installed operations. An implementation time line for end-users should be within 30 days of the time they contract for service.

B. Absorb, Inc.'s Proposed India Operations

The following are the steps and time lines projected to be required to implement Absorb, Inc.'s operations in the country of India. The information is provided in the form of three outlines: an overview outline; an expanded outline; an expanded outline with discussion.

The outlines provided are based on Absorb, Inc. securing a joint venture partner prior to implementation of further activities. Should a feasibility and market study be required prior to securing a joint venture partner, roman numeral "III" will supersede roman numeral "I" of the following outlines.

Overview Outline.

I. Determine potential Indian company for India Joint Venture (JV) with Absorb, Inc.

II. Propose type of relationships between Absorb, Inc. and JV partner. Projected time line: 30 days.

   A. Relationship during initial market feasibility studies.

   B. Revised relationship for manufacturing/services/systems pre-engineering study (can be determined after completion of initial market feasibility studies).

   C. Revised relationship for manufacturing/services/systems operations (can be determined after final decision to implement operations).

III. Determine feasibility/market/operations studies. Projected time line: 90 days.

A. Determine required/proposed studies.
B. Determine activities to complete studies.
C. Determine location of activities (India/USA).
D. Determine person(s)/companies for activities.
E. Determine time-lines for studies.
F. Determine costs of studies.
G. Determine potential financing sources for costs of studies.
H. Finalize cost financing sources and activity responsibilities.
1. Secure required financing.
J. Implement studies.

IV. Pre-Operations. Projected time line: 90 days.

A. Finalize scope of operations.
B. Finalize name(s) of company(s).
C. Finalize financial sources.
D. Finalize financial structure.
E. Finalize corporate/business structure.
F. Determine management/executive/board participants.

V. Begin company operations for sale and use. Time line: 6 months.

A. Obtain Financing.
B. Construction of operations requirements.
C. Begin operations for sale and use.

Expanded Outline

I. Determine potential Indian company for India Joint Venture **(JV)** with Absorb, Inc. Time line unknown.

II. Propose type of relationships between Absorb, Inc. and JV partner. Projected time line: 30 days.

A. Relationship during initial market feasibility studies.
1.Formal relationship.
2. Monetary relationship/responsibilities.
B. Revised relationship for manufacturing/services/systems pre-engineering study (can be determined after completion of initial market feasibility studies).
C. Revised relationship for manufacturing/services/systems operations (can be determined after final decision to implement operations).

III. Determine feasibility/market/operations studies. Projected time line: 90 days.

A. Determine required/proposed studies.

1. Agro-products and systems;
2. Industrial oil/chemical cleanup and recycling/disposal;
3. Oil/Chemical spill recovery operations and recycling/disposal.

a. Determine feasibility of immediate markets and project future markets.

(1) Determine the extent and types of the immediate markets for the Company's products.

(2) Project the potential of the markets, on an annual basis, over a five to ten year period from start of operations.

(3) Determine price sensitivity for immediate markets.

(4) Project price sensitivity for future market expansion.

(5) Project market acceptable price (wholesale/Retail) of products/ services/systems (FOB plant/shipped to end user/on site services).

(6) Project market penetration program to open markets.

(7) Determine acceptable first year operations turn-over (profit/loss).

(8) Project required costs of operations to meet acceptable turn-over (profit/loss).

(9) Project two, five and ten year expansion and turn-over (profit/loss).

b. Project economical feasibility of operations.

c. Determine scope of first year operations.

(1) Determine types of absorbent products (if absorbents are required).

(2) Determine types of operations (services and systems).

(3) Determine type and quantity of feedstock for absorbents (if absorbents are required).

(4) Determine types and accessibility of service/systems equipment required.

(5) Determine types and accessibility of manufacturing equipment for absorbents/services/systems.

(6) Determine manufacturing plant sites for absorbents/services/systems.

(7) Design (pre-engineer) manufacturing/services/systems operations.

(8) Determine transportation logistics.

(9) Determine base-site locations for services/systems deployment.

(10) Determine costs of operations.

(11) Determine price (wholesale/retail) of products/services (FOB plant/shipped to end user/on site services).

(12) Project first year operations turn-over (profit/loss).

(13) Project ten-year expansion and turn-over (profit/loss).

d. Determine logistic and economic feasibility of operations.

e. Determine financing strategy of operations.

f. Final determination of USA/India companies relationship for India operations.

B. Determine activities to complete studies.

C. Determine location of activities (India/USA).

D. Determine person(s)/companies for activities.

E. Determine time-lines for studies.
F. Determine costs of studies.
    1. In India study costs.
    2. In USA study costs.
    3. Travel costs between USA and India.
    4. Living costs for USA persons in India.

G. Determine potential financing sources for costs of studies.
    1. In India study costs.
    2. In USA study costs.
    3. Travel costs between USA and India.
    4. Living costs for USA persons in India.
H. Finalize cost financing sources and activity responsibilities.
    1. Secure required financing.
J. Implement studies.

IV. Pre - Operations. Projected time line: 90 days.

A. Finalize scope of operations.
    1. Agro/Industrial absorbents manufacturing and recycling.
    2. Petroleum and Chemical waste and spill recovery and recycling.
B. Finalize name(s) of company(s).
C. Finalize financial sources.
D. Finalize financial structure.
E. Finalize corporate/business structure.
F. Determine management/executive/board participants.

V. Begin company operations for sale and use. Time line: 6 months.

A. Obtain Financing.
B. Construction of operations requirements.
    1. Construction of manufacturing plants and operations for Agro/Industrial absorbents.
    2. Construction of petroleum and chemical waste and spill recovery and recycling equipment and systems, and operations.

C. Begin operations for sale and use.

Expanded Outline with Discussion.

I. Determine potential Indian company for India Joint Venture (JV) with Absorb, Inc. Time line unknown.

II. Propose type of relationships between Absorb, Inc. and JV partner. Projected time line: 30 days.

A. Relationship during initial market feasibility studies.
   1. Formal relationship.
   2. Monetary relationship/responsibilities.

B. Revised relationship for manufacturing/services/systems pre-engineering study (can be determined after completion of initial market feasibility studies).

C. Revised relationship for manufacturing/services/systems operations (can be determined after final decision to implement operations).

III. Determine feasibility/market/operations studies. Projected time line: 90 days.

A. Determine required/proposed studies.

The studies are to determine the extent of the markets and their economic feasibility relating to the three initial proposed operations:

1. Agro-products and systems;
2. Industrial oil/chemical cleanup and recycling/disposal;
3. Oil/Chemical spill recovery operations and recycling/disposal.

Section "III." of the study outline will be completed for each of the above three initial operations. Study outlines for each initial operation will be provided upon final/formal determination that Absorb, Inc. and the proposed JV partner wish to proceed in a business relationship.

The prime topics required in the studies, in suggested order of completion, are:

a. Determine feasibility of immediate markets and project future markets.
   General determinations for all proposed operations are:
   (1) Determine the extent and types of the immediate markets for the Company's products and systems.
   (2) Project the potential of the markets, on an annual basis, over a five to ten year period from start of operations.
   (3) Determine price sensitivity for immediate markets.
   (4) Project price sensitivity for future market expansion.
   (5) Project market acceptable price (wholesale/Retail) of products/ services/ systems (FOB plant/shipped to end user/on site services).
   (6) Project market penetration program to open markets.
   (7) Determine acceptable first year operations turn-over (profit/loss).
   (8) Project required costs of operations to meet acceptable turn-over (profit/loss).
   (9) Project two, five and ten year expansion and turn-over (profit/loss).

b. Project economical feasibility of operations.

This is an initial determination of the feasibility of operations given information collected from "a" above. Determination is: Can the markets sustain operations immediately, or are the markets to immature and operations will not be economically feasible until a future time. If projections are favorable, the study will continue. If projections indicate an immature market, the decision may be to hold on a specific operation in favor of starting other operations, or begin operations and slowly mature the market with the understanding profitability may not be as soon as preferred.

c. Determine scope of first year operations.

General determinations for all proposed operations are:

(1) Determine types of absorbent products (if absorbents are required).
(2) Determine types of operations (services and systems).
(3) Determine type and quantity of feedstock for absorbents (if absorbents are required).
(4) Determine types and accessibility of service/systems equipment required.
(5) Determine types and accessibility of manufacturing equipment for absorbents/services/systems.
(6) Determine manufacturing plant sites for absorbents/services/systems.
(7) Design (pre-engineer) manufacturing/services/systems operations.
(8) Determine transportation logistics.
(9) Determine base-site locations for services/systems deployment.
(10) Determine costs of operations.
(11) Determine price (wholesale/retail) of products/services (FOB plant/shipped to end user/on site services).
(12) Project first year operations turn-over (profit/loss).
(13) Project ten-year expansion and turn-over (profit/loss).

d. Determine logistic and economic feasibility of operations.

This is the final determination for proceeding with operations. The logistic determination is location of manufacturing plants, industrial cleanup and spill cleanup facilities, recycling facilities, transportation needs, and end users. The economic determinations are projected turn-over and required funding.

e. Determine financing strategy of operations.

Basically, how will the operations be financed.

f. Final determination of USA/India companies relationship for India operations.

Final determination of the management and financial relationship between Absorb, Inc. and the JV partner.

B. Determine activities to complete studies.

Basic determination is what will be required to complete the studies as outlined above. This determination may not be able to be formatted for the entire studies prior to beginning studies. For example, topics "a. Determine feasibility of immediate markets and project future markets." will more than likely have to be completed prior to determining requirements for continuing topics. However, while "a." is being completed, initial research for, "c. (3)., Determine feedstock for absorbents." could begin. It should be noted that a suitable feedstock for the absorbents can be found in India. A determination is how much absorbent is required for what operation over what period of time.

C. Determine location of activities (India/USA).

This determination may best be accomplished after "B. Determine activities to complete studies." is accomplished. Market studies, by their nature, may have to be completed in India. The feedstock for absorbent determination may be accomplished to some degree in the USA. A factor to consider is cost and time for the completion of the studies. It may be time and cost efficient to set up all study operations in India.

The studies for the Oil/Chemical spill recovery operations and recycling/disposal, due to its advanced technology, will have to be accomplished in India with direct assistance of Absorb, Inc.

D. Determine person(s)/companies for activities.

Final determination will be a joint activity of Absorb, Inc. and the JV partner. This determination will present itself upon determination of activities and location of activities. It is felt that certain of the study activities will require an India presence by Absorb, Inc. personnel to some degree especially regarding Oil/Chemical spill recovery operations and recycling/disposal.

Should it be determined Absorb, Inc.'s presence is best during all study activities, the minimum Absorb, Inc. personnel in India for study activities would be two with a potential of three.

E. Determine time-lines for studies.

The most critical determinations by the studies are: Feasibility of immediate markets and projecting future markets, and projecting economical feasibility of operations. These determinations will indicate the magnitude of first year operations and dictate the magnitude of the continued study. As stated above, the feedstock for the absorbents exist in India, it is researching the right one(s) given the types of first year operations.

Based on USA experience, Absorb, Inc. projects a time-line not to exceed 90 days with a potential of completion in 60 days for the first two topics: Feasibility of immediate markets and project future markets, and Project economical feasibility of operations. The time-line will be based not on the determination of what information needs to be collected, but how fast the information can be collected.

It is Absorb, Inc.'s intent to have all studies and determinations competed and the Indian operations beginning by end of April, 1994 (or sooner).

F. Determine costs of studies.
   1. In India study costs.
   2. In USA study costs.
   3. Travel costs between USA and India.
   4. Living costs for USA persons in India.

G. Determine potential financing sources for costs of studies.
   1. In India study costs.
   2. In USA study costs.
   3. Travel costs between USA and India.
   4. Living costs for USA persons in India.

H. Finalize cost financing sources and activity responsibilities.
   1. Secure required financing.

J. Implement studies.

"G - J" to be determined/finalized after determination of "F".

IV. Pre - Operations. Projected time line: 90 days.

A. Finalize scope of operations.

To be determined. Initial discussions and determinations of the above topic is provided for under, "I. Propose type of relationships between Absorb, Inc. and the JV partner" of this proposed study activity outline.

B. Finalize name(s) of company(s).

It may prove beneficial to have separate divisions and/or units for each of the three initial operations: Agro-products and systems; Industrial oil/chemical cleanup and recycling/disposal; Oil/Chemical spill recovery operations and recycling/disposal.

In addition, Absorb, Inc. has plans for introducing other operations to India which could be under the umbrella of the lead Indian company.

C. Finalize financial sources.

To be determined after determination of, 11. Determine feasibility/market/operations studies.

D. Finalize financial structure.

To be determined after determination of, 11. Determine feasibility/market/operations studies.

E. Finalize corporate/business structure.

To be determined. initial discussions and determinations of the above topic is provided for under, "i. Propose type of relationships between Absorb, Inc. and the JV partner of this proposed study activity outline.

F. Determine management/executive/board participants.

To be determined. Initial discussions and determinations of the above topic is provided for under, "I. Propose type of relationships between Absorb, Inc. and the JV partner." of this proposed study activity outline.

V. Begin company operations for sale and use. Time line: 6 months.

Absorb, Inc. has every intention of having profitable operations in India and, therefore, will move forward in operations structure as rapidly as possible.

A. Obtain Financing.
B. Construction of operations requirements.
   1. Construction of manufacturing plants and operations for Agro/Industrial absorbents.

To be constructed includes: Collection of the raw materials for the absorbents and their transport to the manufacturing sites; the construction of the manufacturing plants; the transport of the absorbents to end-users; the collection of used absorbents and their transport to recycling sites; the recycling operations; the transport of the recycled new-use products to final end-users.

   2. Construction of petroleum and chemical waste and spill recovery and recycling equipment and systems, and operations.

To be constructed includes: Construction of emergency and industrial spill recovery equipment; establishing spill recovery personnel teams and centers; construction of oil/chemical disposal/recycling plants/sites.

C. Be in operations for sale and use.

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Environmental Business Exchange (EBE) Trip Reports

Febuary 22, 1995

Trip Reports as per Cooperative Agreement (CA) AEP-0015-A-00-2055-00 in Support of the U.S.-Asia Environmental Partnership

EBE ID#	EBE DATES	TITLE OF TRIP REPORT
INDI-1I	11/7-23/93	Oil Absorbent Demonstration
INDI-1K	12/6-29/93	Review of Incinerator Operations, Indian Thermal and Cyno Clean
INDI-2	4/23 - 5/6/94	Review of Pollution Prevention Control Technology in the Textile Industry
INDI-5	4/30 - 5/10/94	Clean Coal Technology Evaluation
INDI-1P (1&2)	5/94-8/94	Clean Technology for Paper Mills - Esvin - Parts 1&2
INDI-1R	6/18-30/94	Evaluation of Biological Formulations for Industrial Wastestreams Treatment (Premier Ziba)
INDI-1Q	6/18-7/1/94	Indian Boilers Manufacturers' Association Trade Mission
PHIL-8	9/27-10/6/94	Technical Assistance on H2S Gas Abatement Systems (PNOC)
HONG-1	10/23-11/9/94	Coleman Energy and Environmental Systems Technology Transfer
KORE-1	12/9-22/93	Fuel Gas Desulfurization Technology Assessment (KEPCO)
INDI-1L	1/17-2/23/94	Corporate Environmental Mission (IT Corporation Exchange)
INDI-4	3/11-30/94	Evaluation of CS_2 Recovery in Rayon Mills