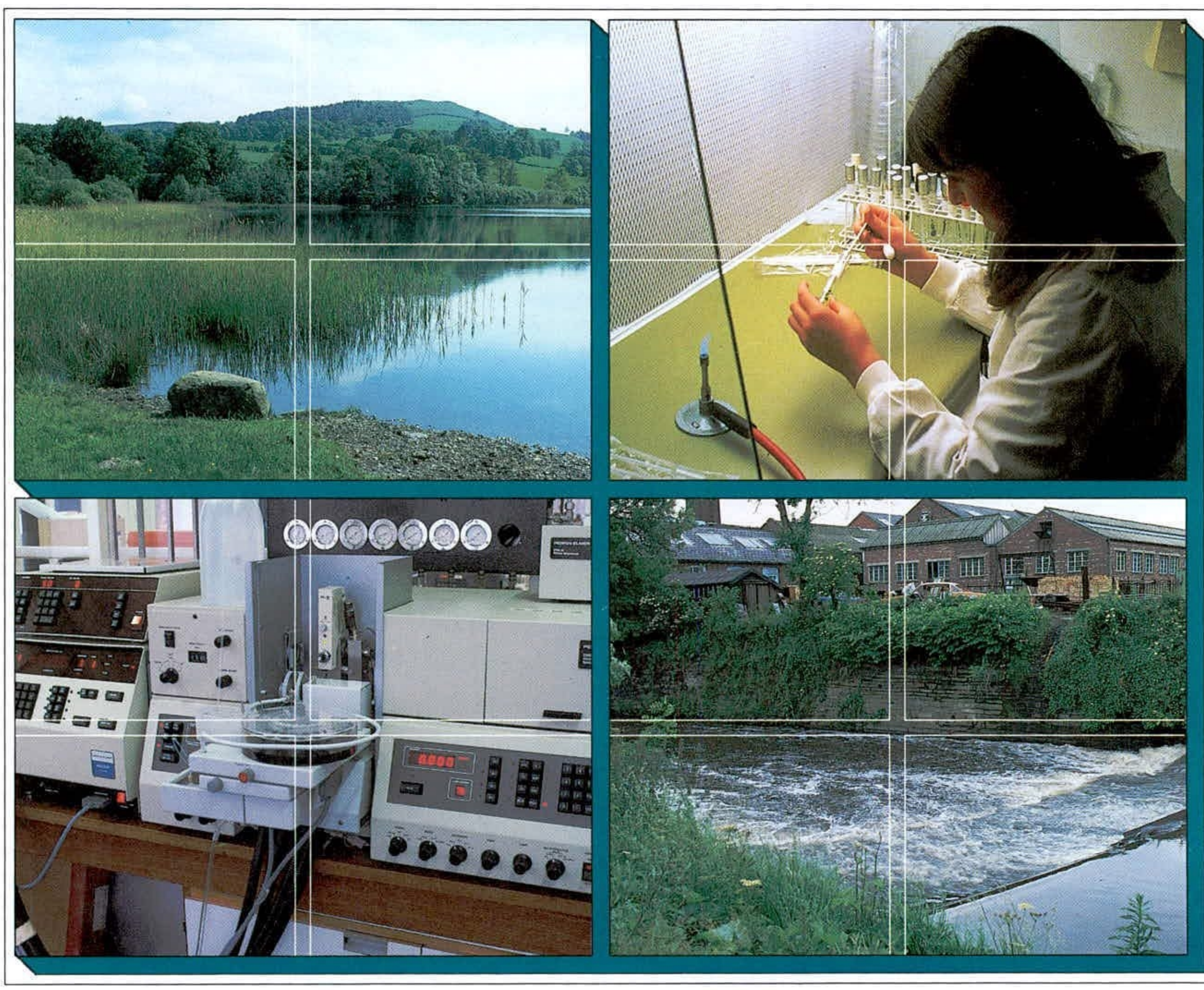
Institute of Freshwater Ecology

Business opportunities in Water treatment and pollution control in India and Thailand

Report of a seminar on 17 January 1994 World Trade Division of London Chamber of Commerce and Industry

F.H. Dawson



Natural Environment Research Council

INSTITUTE OF FRESHWATER ECOLOGY
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Business opportunities in
Water treatment and pollution control
in India and Thailand

Report of a seminar on 17 January 1994
World Trade Division of London Chamber
of Commerce and Industry

F.H. DAWSON

Project leader:	F.H. Dawson
Report date:	March 1994
Report to:	TFSD Marketing (David Coates)
Contract No:	
IFE Report Ref:	RL/T95313c2/2
TFS Project No:	T95313c2

The Institute of Freshwater Ecology is part of the Terrestrial and Freshwater Sciences Directorate of the Natural Environment Research Council.

SUMMARY

The seminar was attended and feed back was requested
- on useful contacts (see delegates list);
- sources of financial support for travel,
  fact finding (Dti),
  feasibility studies (Dti/DEG).

The seminar was apparently aimed at SME's and reflects the export for trade and technological improvements. The target for environmental effects was aimed at the reduction of excessive limits which required the latest technologies in favour of slightly older but still workable technologies.
Thailand is a strong market for manufacturers of environmental control equipment but not necessarily TFSD skills except that biotic monitoring and gaseous deposition could be still worth exploring.
No emphasis was given to environmental monitoring *per se* only as reducing 'excessive existing' conditions.
Biological monitoring was not discussed.
Hydrological aspects were not introduced as much of work was targeted at densely populated areas, not the general country.
Some dispersal of resources or de-urbanisation to other centres, is under consideration.

Discussions on methods of approach were given but were primarily of relevance to industrial firms.
Contacts and the correct choice of partners were important in Thailand, whereas in India patience was still necessary and the careful selection of types of work and area for market development could be advantageous.

Joint schemes amongst British groups were always considered to be advantageous. Do not compete with other Brits - join them because marketing is so often excessively expensive and laborious. Ongoing benefits or extensions of contracts could outweigh these initial efforts.

The best areas for NERC-TFSD, seem to be in loss-leader training schemes by our numerous specialists even if these are part funded at UK end; such schemes could produce long lasting benefits outweighing many types of mission, sales or exhibitions.

Details of Bank funded projects are given but do not seem particularly appropriate to commissions required by TFSD.

CONTENTS

BUSINESS OPPORTUNITIES IN WATER TREATMENT
&
POLLUTION CONTROL in INDIA & THAILAND

SEMINAR

17 January 1994
at
London Chamber of Commerce and Industry

Chairman
David Killick
Director, Business Development

CDC

Sponsored by

* DEG

* The European Community Investment Partners (ECIP)

Organised by

CDC

In conjunction with

* Environmental Resources Management
* Department of Trade and Industry
* Technology Partnership Initiative

SEMINAR PROGRAMME

Chairman: David Killick, Director, Business Development, CDC

09.00 REGISTRATION

09.30 Welcome by CDC and DEG
David Killick, Director, Business Development, CDC
Paul Weise, Director, DEG

Technology Partnership Initiative
Speaker: Lyndon Edwards, Deputy Head of TPI Secretariat

IFE Ltd 'editor' for TPI News

Business Opportunities for Trade and Investment in the Field of Environmental Technology in Thailand
Speaker: Rainer Seegmuller, Consultant, ERM
* Present situation and historical trend
* Why the market is set to grow

Speaker: Dr Tim Whitington, SEATEC International Ltd, Bangkok

IFE Ltd

* Business opportunities
* Keys to success

Support to British Companies in Thailand
Speaker: Gordon Welsh, Export Promoter for Thailand, DTI
* Procedure and contacts to identify business opportunities and partners
* Incentives to investors

Experience of a British Company in Thailand
Speaker: Peter Williams, Divisional Director, South East Asia, Binnie & Partners [London]
Speaker: Anthony Eades, Group Development Manager, Dale Electric International [Birmingham]
Speaker: To be decided [Glasgow]

11.05 COFFEE

Business Opportunities for Trade and Investment in the Field of Environmental Technology in India
Speaker: Rolf Eggersdorfer, Lahmeyer International
* Present situation and historical trend
* Why the market is set to grow
* Business opportunities
* Keys to success

Support to British Companies in India
Speaker: Carolyn Stankiewicz, Export Promoter for India, DTI
* Procedure and contacts to identify business opportunities and partners
* Incentives to investors

Experience of a British Company in India
Speaker: Peter Brunt, Managing Director, Advance Project Technology Ltd [London] [Birmingham]
Speaker: To be decided [Glasgow]

Support to British Businesses by CDC and DEG
Speaker: Paul Weise, Director, DEG
Speaker: Helen Binns, Business Development, CDC
* What is on offer
* Terms and conditions of finance
* Special programmes: ECIP, IFCT

13.15 BUFFET LUNCH

There will be an opportunity for questions after each session

LONDON

THE DELEGATES

Company	Representative
ACER CONSULTANTS LTD Consulting engineers	MR GARY FRITH Market Analyst
AIR PRODUCTS PLC Industrial gases & applications	MR PETER BARRATT Environmental Technology Manager
APPLIED RESEARCH & PROJECT MANAGEMENT SERVICES Management & engineering consultancy	DR DAVID WRIGHT Managing Consultant
BABCOCK WATER ENGINEERING LTD Water & wastewater	MR RAY HARRIES Sales Manager Far East
BINNIE & PARTNERS Consulting civil engineers	MR CHRISTOPHER WALTER Partner
ECKENFELDER & BINNIE LTD Consulting engineers	MR JAMES LANDER Process Engineer
BIWATER INTERNATIONAL COMPANY Potable & wastewater treatment	MR BARRY WOOD Sales Manager
B M T FLUID MECHANICS LTD Consultancy	MR MELVYN DAVIES Managing Director
B M T FLUID MECHANICS LTD Consultancy	MR ROBERT BEITH Senior Consultant
CHASE INVESTMENT BANK Project financing	MR HOWARD LACK Director
CLARKE ASSOCIATES Environmental monitoring	MR P R CLARKE Director
CORY ENVIRONMENTAL LTD Waste management	MR PETER ALLEN Financial Analyst
COSTAIN ENVIRONMENTAL SERVICES LTD Design & construction	MR BRIAN BOSTON International Business Development Manager
CREMER & WARNER LTD Environmental Consultancy	MR PHILIP JAGO Director
DELFHI INTERNATIONAL LTD Environmental agency	MR NICHOLAS PARKER Managing Director
DENVER PROCESS EQUIPMENT LTD Manufacturers of mineral processing equipment	MR KEVIN AYLING Process Control Engineer
DEPARTMENT OF THE ENVIRONMENT Construction export promotion	MR DWIGHT DEMORAIS Head Overseas Branch

IFE List

*

?

DEPARTMENT OF TRADE & INDUSTRY

MR RAY EATON
Head Joint Environmental Markets Unit

IFE list

DEPARTMENT OF TRADE & INDUSTRY

MR LEE JENNINGS
Export Promotions Thailand

ECOFIN
Environmental investment

MR JAYANTA MITRA
Associate

ELE INTERNATIONAL LTD
Environmental monitoring equipment

MR GRAHAM MELLER
Marketing Manager

ENVIRONMENTAL CONSTRUCTION LTD
Wastewater treatment

MR RICHARD CHERRY
Director

ENVIRONMENT RESEARCH COUNCIL
Terrestrial & fresh water sciences

DR HUGH DAWSON
Senior Scientist

EPC
Project development

MR KENNETH GIBBONS
Director

FERCELL ENGINEERING LTD
Pollution control

MR MALCOLM FLETCHER
Managing Director

FLUID DYNAMICS INTERNATIONAL LTD
Water purification

MR ROBERT SPENCER
Managing Director

FLUID DYNAMICS INTERNATIONAL LTD
Water purification

MR JOHN PAYNE
Consultant

SIR ALEXANDER GIBB & PARTNERS LTD
Consulting engineers & architects

MR MIKE HART
Director

HADEN YOUNG
Buiding services

MR JOHN SIMMONS
Branch Manager

PETER HAYWARD ASSOCIATES
Environmental Consultancy

MR DEREK JAMES
Marine Resource Manager

INTERNATIONAL INDUSTRIAL CENTRE
Technical consultancy

MS MARIETTA BARRETO
Director

INSITUFORM TECHNOLOGIES LTD
Pipeline rehabilitation

DR D B DOWNEY
General manager

McDOWELLS LIMITED
Consulting engineers

MR EDWARD MAYALL
Commercial Director

METITO (UK) LTD
Water treatment & pollution control

MR PETER KOSTER
Chlorination Manager

o/s

MONTGOMERY WATSON
Consulting engineers

MR RON THOMAS
Principal Engineer

IFE list

MORGAN GRENFELL INTERNATIONAL
Project finance

MR NICOLAS PITTS-TUCKER
Director

MOTT MACDONALD WATER SUPPLY AND
WASTE WATER
Civil engineering

MR JOHN SMITHSON
Divisional Director

MOTT MACDONALD LTD Consulting engineers	MR MICHAEL BURLEY Director
OVE ARUP & PARTNERS Civil engineering	MR JOHN ROBERTS Associate
PERMASTORE LTD Manufacturer of tanks and silos	MR RICHARD LEWIS Industrial Sales Manager
PLENTY MIXERS Fluid agitators, aerators & floculators	MR CHRISTOPHER BARTLAM Operational Development Manager
SAMUEL MONTAGU & CO LTD Banking	MR ROGER THOMPSON Assistant Director, Export & Project Finance
SINGAPORE ECONOMIC DEVELOPMENT BOARD	MR JOHN TAN Director
STANDARD CHARTERED BANK Merchant banking	MR ALISTAIR BARR Manager International Trade
TRAFALGAR HOUSE CONSTRUCTION LTD Constractors & designers	MR EDWARD CLARKSON Director
TRAFALGAR HOUSE CONSTRUCTION LTD Constructors & designers	MR IAN GRAINGER International Marketing Manager
WARREN SPRING LABORATORY Environmental research	MR ROGER DUNN Business Centre Manager
WATER TRAINING INTERNATIONAL Training	MR ALAN BIRD Overseas Development Consultant
WESSEX WATER Water industry	MR IAN CURTIS Project Manager Business Management
WEST MERCHANT BANK LTD Merchant banking	MR JOHN LUCKHAM-DOWN Manager
WS ATKINS WATER Consultants	MR KEVIN HOLROYD Senior Engineer

PRESS

HAZNEWS	MR DAVID COLEMAN Editor & Publisher
WORLD WATER & ENVIRONMENTAL ENGINEER	MR ANDREAS KING Editor

DEG

Position	Representative
Project Manager, Thailand	MRS MARIA SPOLGEN
Project Assistant, Thailand	MRS DANIELA SOHNGEN
Project Manager, India	MRS RICARDA HORST
Project Manager, India	MR ANDREAS ZIESMANN

CDC

Position	Representative
New Business Manager	MR DAVID MORLEY
Manager of Advisory Services	MR JOHN PEAT
New Business Manager	MR DONALD PECK
Regional Investment Manager	MR NIGEL PAYNE

LONDON CHAMBER OF COMMERCE AND INDUSTRY

Department	Representative
World Trade Division	MR DAVID ROBERTS Executive - World Trade

TP NEWS
TECHNOLOGY PARTNERSHIP INITIATIVE
Issue 1 September 1993

From Rio to reality

The Technology Partnership Initiative was launched at a major international conference in Birmingham. Addressing the three-day Global Technology Partnership Conference, John Major, Prime Minister of the United Kingdom, said the follow-up to the Rio Earth Summit "... would succeed best if it went with the grain of the economy, not cut across it".

Co-sponsored by British industry and scientific and training organisations, over 250 senior businessmen and women attended the Conference. Over half of these came from the rapidly industrialising countries in the developing world.

...Why were they there?

> "Developing countries ... must generate resources, reduce weight, modernise and acquire the necessary motive power."
> Avininder Singh, India

Businesses everywhere face new challenge - how to cope with growing demands to protect the environment. Keynote speakers from all over the world addressed the Conference on the environmental challenges facing business; the role of technology co-operation from supplier and recipient perspectives; and the international help and funding available. These were lively and informative sessions, with large numbers of delegates wishing to speak. Andrew Gaskin from Barbados said afterwards "It was all very well organised, but more time could have been allocated in the plenary sessions for delegates participation."

A good point, and Mr Gaskin is not alone in making it, but the Conference also included 36 individual workshops covering 16 different topics. This provided a more informal setting for discussion, with businessmen and women able to explore for themselves different technological approaches to familiar environmental problems.

Did they get anything out of it?

Come back in three years for the answer. That is how long the Initiative has to run. But for now, the answer must be yes. The aim throughout the Conference was to bring together business concerns and expertise in both developing and developed counties. This was breaking new ground for many of the companies organising the workshops and in some instances the balance was not quite right.

Delegates assemble for the Conference

But overall, delegates were more than satisfied. British and overseas business leaders went away with a much clearer picture of technology co-operation; the value of partnership to both partners; some of the challenges and affordable technology to meet them; and the conditions for successful transfer of skills and technology.

But most of all, there was optimism about future partnerships. The Latin American countries were so taken with the approach, they formed a Latin America Chapter to promote co-operation. One delegate found exactly the water technology he had been seeking for a year, another some ideas about construction materials. Many others reported the start of potentially good business relationships.

Right: Mr John Major, British Prime Minister, speaking at the Conference

The Initiative

> "... a good day to start a three-year programme, but what will that programme be?"
> Colin Hudson, Barbados

The Initiative is about making businesses in developing countries more profitable through information on management techniques and examples of improved technology and best practice operated by British companies. This will also help to meet growing environmental pressures. It is sponsored by the British Government, but is essentially a business-to-business initiative. Chris Yarnell, head of the TPI Secretariat, was emphatic: "Let us be clear. This is about hard-nosed commercial self-interest, for companies in developing countries, but also for UK companies. Technology co-operation, if it is properly handled, means both sides win."

How will it work?

In future, *TPI News* will provide information on new developments and activities. There will be special features on environmental problems and business solutions, and regular advice on best practice and on technologies available in the UK. A network of contacts has also been established to simplify the transfer of information to and from companies about problems and solutions. If in doubt, the first point of contact is the commercial section at the British Embassy or High Commission, or write to the TPI Secretariat direct.

TPI will also be expanding its

continued on page 2

Why British companies?

John Major answered that when he said "British industry has a long track record of successful technology co-operation around the world .... We want to ensure that expertise is both widely available and more widely used".

Contents

SPECIAL FEATURE INSIDE: *Environmental Management*

continued from page 1

network and working with others. During the Conference, Peruvian delegate Luis Vega suggested that the Peruvian Sociedad Nacional De Industrias be included in the network. They are now members. Uruguay delegate Walter Bonnet said that he would be distributing TPI information to over 1,000 companies in Uruguay through the Chamber of Industries. And since the Conference, the Centre of Environmental Technology in Hong Kong has been invited to join TPI. Also, the Prince of Wales Business Leaders' Forum, an international organisation set up to encourage environmental awareness in the business community, has approached the TPI about working together. TPI will be working on more ventures of this kind. It will also be promoting or participating in key seminars of direct interest to developing country businesses (those in India and Latin America are featured in this newsletter) and is establishing close working links with international organisations in the field, such as UNEP, the IEA and OECD.

The TPI is about getting things moving and helping business in developing countries to grow and meet the new environmental challenge.

The Conference Report costs £5 and can be obtained by contacting Green College, Oxford University. Telephone: ++ 44 865 751103.

Britain investing in development

For more than 40 years the Commonwealth Development Corporation (CDC) has been delivering technology, training, management and millions of pounds in capital to developing countries throughout the Third World.

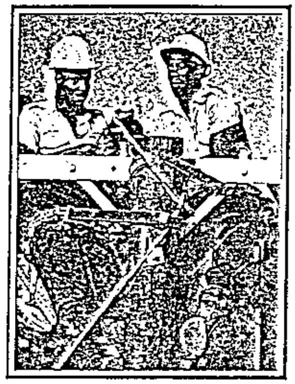
CDC is Britain's official finance institution for bilateral development and a member of the TPI network. By providing long-term loans and risk capital, it has helped to develop a wide variety of investment projects, from tea estates and shrimp-farming, to telecommunications and electricity generation. By the end of 1992, CDC had £1.5bn (US $2.25bn) invested in 316 projects in 48 countries.

CDC is firmly committed to promoting private-sector investment in the developing world. Its target is to secure three-quarters of all new investments – currently running at over £175m (US $260m) per annum – in private-sector projects.

CDC has been particularly active in the telecommunications field, often in conjunction with state-run ventures but also with the private sector. The 1992 Millicom agreement alone saw an investment of £1.6m towards expanding Ghana's private cellular telephone network. CDC is also participating with Cable and Wireless in an extensive reorganisation of Jamaica's privatised telecommunications system. A £510,000 loan for modernisation and expansion in Ecuador will mean 190,000 new telephone lines – a network increase of 55 per cent.

Electricity generation also features prominently in CDC's activities. Barbados is one of several Caribbean islands where it has helped to modernise the local power system. CDC has also funded British contractors to upgrade the Electricity Corporation of Ghana's transmission system, while its loan to the Calcutta Electricity Supply Corporation (one of two private electric companies in India) will finance the construction of a 500MW thermal-power station. This will employ UK-manufactured turbines.

Perhaps CDC's most useful function is to bridge the investment gap while Third World governments transfer ownership of state corporations into private hands. In Zambia, CDC is involved in a number of ventures which make up the government's privatisation programme. In this and other countries, it is discussing positive ways of participating in the privatisation process. But privatisation means more than just transferring ownership. New capital injections are needed to modernise plants and processes, to provide new buildings, new stock, and even new roads and infrastructure.



CDC is always looking to invest in new projects. Recently it granted considerable loans to Thailand as part of its extensive involvement in schemes throughout Asia. These have helped to support a number of industrial projects, including a modern Thai printing factory which produces telephone directories, school textbooks and other materials for domestic and export markets.

In Zimbabwe, CDC has recently increased its commitment to the industrial sector through a loan to Circle Cement (a subsidiary of the UK's Blue Circle Group) for refurbishing their Harare plant. It has also given financial backing to the ongoing construction of Zimchem's tar and benzol refinery at Redcliff.

CDC has long realised that, as well as backing large undertakings, there is a vital need to support small- and medium-sized businesses. In more than 20 countries it has provided finance for venture funds and development banks, who in turn fund local entrepreneurs.

CDC will invest between £500,000 and £30m in a business, but does not normally finance more than 35 per cent of the total project costs. It lends in UK sterling and US dollars, and prefers equity investments to be less than 20 per cent. On occasion, CDC takes a controlling interest, in which case it provides management expertise. Interest rates are fixed and based on long-term market rates, plus a margin reflecting country and market risk. Grace and repayment terms are determined by the cash-flow of each business.

CDC expects all its investments to adhere to the relevant environmental and social legislation of the host country. It also takes account of any applicable UK, EC or World Bank environmental standards and will not sanction any significant departure from such guidelines.

CDC has 18 overseas offices, with a representative in each ready to give advice to any company considering investment.

Recently, CDC has opened a new office in Nigeria, where activity has included a £1.9m loan to part-finance the establishment of a cocoa-processing factory in Ondo town, Ondo State. The plant is owned by Cadbury Nigeria plc.

For more information, businesses in the developing countries in which CDC operates should contact CDC direct, or the TPI Secretariat. The CDC London office is at 1 Bessborough Gardens, London SW1V 2JQ. Tel: ++ 44 71 828 6505. A copy of CDC's annual report can be obtained by applying to the Corporate Relations Department in London. CDC has also published its first Development Report outlining its role, impact and the criteria under which it operates. It also includes particular studies of CDC's work in Ghana, Jamaica and Thailand. This can be obtained from the same address as the report.

The following are all TPI countries

Argentina	The Bahamas	Bahrain	Barbados*	Bermuda*
Bolivia	Brazil	Brunei	Chile	China
Colombia	Ecuador*	Egypt	El Salvador	Ghana*
Hong Kong*	India*	Indonesia*	Israel	Jamaica*
Kenya*	Kuwait	Malaysia*	Mexico	Nigeria*
Oman	Pakistan*	Peru	Philippines*	Qatar
Saudi Arabia	Singapore*	South Korea	Sri Lanka*	Syria
Taiwan	Thailand*	Turkey	United Arab Emirates	Uruguay
Venezuela	Zambia*	Zimbabwe*		

*Denotes CDC representation

Free training in the UK

As part of the Technology Partnership Initiative, the UK Government, in collaboration with a number of leading British firms, is offering selected individuals a unique opportunity to receive free practical training in the UK.

The 'hands-on training' scheme takes you into the heart of a top British firm, where you will experience at first hand some of the best technology, production methods and management skills which are available in the UK. A challenging training programme will be devised by the host company. This will be tailored as closely as possible to your specific needs and interests and will offer you exposure not only to the capabilities of that company but also its industrial sector.

We will provide you with support before and throughout your stay in the UK. For example, while a knowledge of English is an advantage, it is not essential. Pre-training tuition can be arranged in your own country or through short-term interpreter services provided here. Support for welfare and administrative arrangements, like visa applications, is also available. All eligible costs, such as air-fares, accommodation, subsistence and medical insurance will be shared equally between the UK Government and the host company.

At present there are 10 TPI places to be filled on the scheme. We are currently seeking suitable candidates to take up these and other places in the future. Successful candidates will be key decision-makers, able to maximise the benefits of their stay in the UK to influence change in their own organisations, and, as appropriate, in their wider business communities. They will have a proven track record in their chosen fields. They will also need all the necessary attributes to meet the challenge of a demanding period of learning and to translate this into action on their return.

It is important for the success of the scheme that we are able to assess its value to participants, not only in terms of enhancing their own professional experience, but also the wider benefits for their organisation and business communities. We will therefore be asking each successful candidate for initial reactions to the worth of the scheme: what they have learned from it and what plans they have for putting this new knowledge into practice. We will follow up after six months or so to see what progress has been made.

If you think the training on offer is right for you, or would like to nominate someone else for a place, then we want to hear from you. Please send an up-to-date CV to the TPI Secretariat (address on page 4), together with an indication of the areas where you feel training would be most appropriate for you and your organisation. The Secretariat will match your skills and needs as closely as possible with a suitable British firm. We regret, however, that places are limited.

TPI links with international database: ICPIC

TPI and UNEP are to work together to make sure businesses in the developing countries receive the sort of information they need, which combines business growth with environmental demands. As a first stage, the TPI has established a modern link with UNEP's International Cleaner Production Clearing House (ICPIC), which is housed in Paris.

The system provides easy access to cleaner-production information held in UNEP. It assists by:

- establishing projects and programmes within your company. Central and local authorities may also use the system to establish nationwide and provincial projects and programmes;
- identifying technical process options to make products and their production cleaner;
- saving money by showing you how to reduce your waste and reduce liabilities;
- identifying upcoming events, conferences, training sessions, seminars and workshops;
- locating documents and cleaner-production experts.

ICPIC is available to anyone with access to a computer, a modem and telephone line. For further information, contact Ms Garrette Clark at the following address:

United Nations Environment Programme
Industry and Environment Programme Activity Centre
Tour Mirabeau
39–43 Quai André Citroen
75739 PARIS, CEDEX 15
FRANCE
Tel ++ 1 44 37 14 20
Fax ++ 1 44 37 14 74

UK signs up to GreenTIE

There is a vast amount of information available from a bewildering number of sources on the subject of technologies and practices which can help reduce greenhouse gas emissions. Now GreenTIE (the Greenhouse Gas Technology Exchange) is being piloted by the IEA and the OECD to give interested users streamlined access to this information.

GreenTIE will guide users to the most useful information available on these technologies and practices in the shortest time. It is hoped sources will include multilateral, national and private-sector databases and technology information centres. Information will be provided on the technical coverage and services provided by these databases and centres, as well as their location, costs of access and contact points.

The UK, together with 10 other IEA/OECD member-countries will provide financial backing for GreenTIE's initial two-year developmental phase. Other countries are considering joining the project at a later stage.

For further information on GreenTIE contact:

Dr John Tilley	or	Mr Derk Kalverkamp
IEA Secretariat		NOVEM
2, rue Andre-Pascal		Swentiboldstraat, 21
75775 Paris		6130 AA Sittard
Cedex 16		The Netherlands
France		
Tel: ++ (33) 1-4524 9484		Tel: ++ (31) 46-595-203
Fax: ++ (33) 1-4524 9475		Fax: ++ (31) 46-510-389

Trivalent chromium plating – a case study

Company

Canning has been the leading supplier to the UK electroplating industry since 1860. With 350 employees, it has an established home and export business.

Economic Benefits

For a new plant, savings arise from the use of smaller baths to achieve the same production rate and from reduced expenditure on effluent clean-up. Where there is a premium on quality, or hexavalant chromium is not permitted, savings are much higher. The example below is for a new electroplating and associated effluent-treatment plant to produce three million nickel and chromium-plated water fittings per year.

Example	Trading Technology	Clean Technology
Plating plant	£175,000	£155,000
Effluent plant	£ 70,000	£ 52,000

The capital savings are as above, with a reduction of operating costs in the future.

Background

Electroplating began soon after the necessary foundations had been laid by the discovery of the voltaic cell and Faraday's laws of electrolysis. Chromium plating gives decorative finishes and resistance to both wear and corrosion. In the past, good-quality plating required the use of a high concentration of toxic hexavalent chromium ions.

Clean technology

The company has introduced an electrolyte with a much lower concentration of the less toxic trivalent chromium ion.

Industry:	Electroplating
Operating Company:	W Canning Materials Ltd PO Box 288 Great Hampton Street Birmingham, B18 6AS
Contact:	Mr Brian Johnson Deputy Managing Director and Technical Director
Telephone:	++ 44 21 236 8621

Enabling technology

Two problems had to be overcome:

- The tendency of the trivalent chromium to oxidise to hexavalant at the anode. This was overcome by using a membrane which had been developed for the mercury-free electrolysis of brine.
- The low rate of deposition at the cathode due to the kinetics of the reaction. This was overcome by in-house development of organic additives. These modify the reaction and give a performance superior to the traditional process.

Advantages

- A much safer working environment.
- Reduced discharges of toxic hexavalent chromium, typically from 80ppm to less than 3 ppm of trivalent chromium in the final effluent.
- Quality is improved because the plating is more uniform. This also saves chromium and allows more articles to be plated in the same bath.
- Only half as much electricity is required to deposit the same quantity of chromium.

Latin America Chapter

Buenos Aires Seminar on Environmental Assessment for Industry

Since the TPI Conference in Birmingham, the Chapter has been busy working with the DTI to find ways of promoting technology partnership at a business-to-business level in Latin America. Its chairman, Marcello Decoud, argues that businesses in the Continent need to become more aware of the growing environmental pressures facing them and how to handle these pressures. Hence he is focusing the Chapter's activities in this area.

The Chapter, working with Asociacion Petroquimica Latinoamericana, is organising a series of seminars which will look at how and why businesses need to implement good environmental management practices as part of their commercial activities. The first seminar took place in Buenos Aires in August, with financial backing from the British Government and local industry. The level of interest amongst the local business community had been encouraging and all the places were taken up. In addition, President Menem was represented at the seminar by Senor Enrique Kaplan, Under Secretary for National Resources and the Environment.

The Buenos Aires seminar's objective was to provide a precisely targeted, influential group of decision-makers (on this occasion predominantly from the oil and gas sector) with a broad overview on the introduction to environmental assessment and current legislative and administrative requirements. This overview was followed by a number of case studies focusing on water, energy, the chemical industry and the petrochemical industry. These areas had been highlighted by the Chapter as being particularly crucial for meeting local demand, and the studies offered examples of what British companies are doing in these sectors. On the final day, the seminar addressed the area of corporate environmental management and the future directions and trends of EIA.

The Chapter asked Aberdeen University's Centre for Environmental Management and Planning (CEMP) to run the Seminar. CEMP were delighted to have this opportunity to build on the contacts they established during the Global Technology Partnership Conference. The Centre brought together a team headed up by Brian Clark. He is an internationally renowned expert on environmental assessment and management, with 22 years' experience in the field. The other principal speakers were Professor Larry Canter of the University of Oklahoma, Dr Joseph Morris of Silsoe College, Bedfordshire, and Mr Oliver Brandon of AURIS Environmental.

The next edition of this newsletter will carry a further report, but if you want to know more before then, or would like information on the other seminars in the programme (the next one is in Caracas) then please contact the TPI Secretariat.

ET '94

Running concurrently with the Technology Partnership Initiative Conference was the Environmental Technology Exhibition (ET '93), organised by Reed Exhibitions. ET '93 saw the largest display of enviromental technology and services ever seen in the UK, with over 250 companies on hand to provide UK industry with the latest technological solutions and advice on such matters as air pollution control, water and effluent treatment, waste disposal, land remediation, clean-up and recycling. Over 8,800 visitors attended the exhibition this year.

ET '94 will take place again from 22–24 March 1994 at the National Exhibition Centre in Birmingham. If you would like further information, or free tickets to visit this event (which promises even more exhibitors), please contact the TPI Secretariat (regrettably TPI cannot assist with travel or accommodation) or call Julie Dauncey at Reed Exhibitions on ++ 44 81-948 9826.

Recovery of copper plating from printed circuit board etchant – a case study

Company

FSL was formed in 1967 to supply the new printed circuit industry with the automated etching machines necessary for large-scale production. They now employ a staff of 55 in the UK, export through agencies to many countries throughout the world and have a subsidiary in the Federal German Republic. They are also setting up a company in the USA.

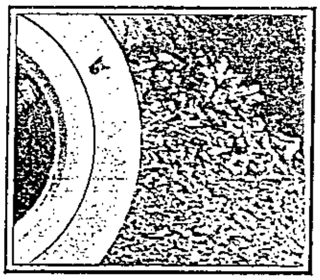
Background

In the manufacture of printed circuits, the unwanted copper foil is etched away by an acid solution of cupric chloride. As the copper dissolves, the effectiveness of this solution progressively falls and it must be regenerated. The traditional way of doing this is to oxidise the cuprous ion produced, with acidified hydrogen peroxide. The volume of solution, however, increases steadily and the surplus liquor must be sorted. The copper in the surplus liquor is precipitated as copper oxide in small quantities of little value, and goes to landfill.

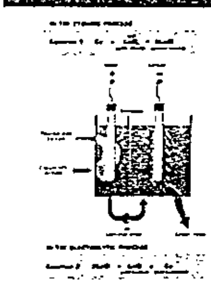
Clean technology

The original proposal for recovering copper using electrolysis came from the Electricity Research Council. A PVC-based membrane allows the passage of hydrogen and chloride ions, but not the copper. The copper is transferred to the cathode and recovered as pure flakes.

Economic benefits	
Copper recovered:	11 te/year
Cost saving:	£ year
Materials:	22,000
Saving in disposal:	6,000
Less extra costs:	(1,000)
Total:	27,000
Capital investment:	£55,000
Payback:	2 years



Above: Recovered copper



Enabling technology

The development of a suitable PVC material and the process change by which the excess etchant was pumped directly to the recovery circuit.

Advantages

- The quality of the printed circuit boards is improved.
- Disposal costs are virtually eliminated.
- The etching solution is maintained at its optimum composition.
- Copper is recovered in a high-value form.
- There are no hazardous chemicals to be handled.

Industry:	Printed Circuit Board Manufacture
Equipment Supplier:	Finishing Services Ltd (FSL) Woburn Road Industrial Estate Kempston Bedfordshire MK42 7BU
Contact:	Mr Garth Weed Technical Manager Telephone: +44 234 857004

Editorial

This is your newsletter. And it is an important part of the Technology Partnership Initiative. We would like to hear your views on how *TPI News* can be improved and what subjects we should try to cover.

We will keep you up to date with all major TPI news and events, such as national or regional seminars. We want to hear from you if you are planning similar business-to-business activities – you never know we might even be able to help. *TPI News* will also be producing case studies on best practice and technology partnerships. Your experience here would be invaluable.

Our special features will focus on topics of direct interest to businesses in TPI countries, looking at the implications for business and providing information on sources of help. In this issue we look at environmental management and training – suggested by many at the Global Technology Partnership Conference. But what topics would you like to see future issues cover?

Please pass this newsletter to others who may be interested.

Technology Partnership Initiative Secretariat
151 Buckingham Palace Road
London SW1W 9SS
Telephone: +44 71 215 1057
Fax: +44 71 215 1089

Confederation of Indian Industries works with British High Commission to organise environmental seminars

Since his return from the Birmingham Conference, Mr Nyati of the Confederation of Indian Industries (CII) has been advising the British High Commission in New Dehli on how the TPI can be used in India to address some of the major environmental problems caused by industrial growth.

The CII argue that rapid population growth, urbanisation, industrialisation and economic growth have caused serious pollution problems in India. The statistics support this: 4 million tonnes of particulates; 1 million tonnes of carbon monoxide; 0.5 million tonnes of nitrogen; and 0.2 million tonnes of hydrocarbons, beside a host of other (solid and liquid) toxic substances, are generated each year.

This has led to major environmental problems, ranging from air pollution to waste utilisation, and from water treatment to hazardous-waste management in some of India's major industrial cities. And the CII has asked the TPI to hold a series of seminars on the technical and management skills, planning, training and problem-solving needed to tackle these problems.

The next newsletter will report back on the arrangements for the seminars and let you know where they are being held. In the meantime, if you want to find out more, then contact the TPI Secretariat.

The Rover Group – a case study

The Rover Group produces about 36 per cent of all cars built in Britain. It is the UK motor industry's largest manufacturer and biggest exporter, selling its vehicles in 150 markets worldwide. Its annual sales are worth £3,700m, with exports accounting for over £1,100m.

The Group's largest factory is at Longbridge, near Birmingham, where Rover 200, Rover 400, Metro, Mini, and Honda Concerto models are assembled. The plant also produces engines, transmissions and castings.

Case study objective

To demonstrate the cost and energy savings which can be achieved, without significant investment cost, by a management-led approach to raising staff awareness of energy efficiency.

Economic benefits

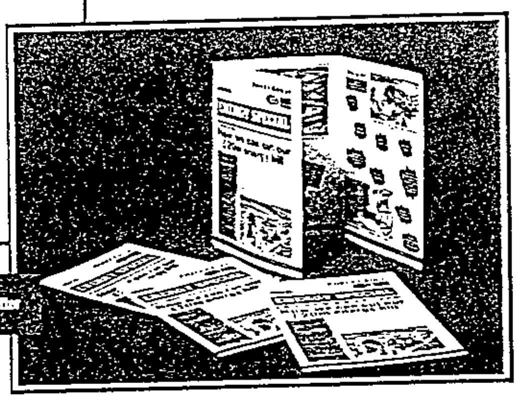
Potential users:	Any energy user
Direct costs:	£7,200 (1992 prices) for newsletter and other promotional activities
Savings achieved:	Over £1m in six months
Payback period:	Negligible

Case Study Summary

In June 1991 Rover Group started a new energy costs-saving programme at its Longbridge site. The aim was to save the company £1m by raising employee awareness. This was achieved by:

- the formation of a site energy group;
- a publicity campaign;
- a competition;
- performance-reporting against targets; and
- using existing means of communication.

A site energy team representing every business area was set up, which included engineering and energy specialists. A six-page energy newsletter was then circulated to 16,000 Longbridge employees. The programme did not require any additional manpower or result in any lost production. The savings came with improved energy 'housekeeping', the rescheduling of operations, resetting controls and minor modifications to processes.



Right: Rover Group newsletter

Host organisation

Rover Group Ltd
PO Box 41
Longbridge
Birmingham B31 2TB

Monitoring organisation

The John Pooley Consultancy
6 Waterside Close
Hartlebury
Worcestershire DY11 7TS

Energy management at Longbridge

The energy-saving project was just one of a number of initiatives at Longbridge designed to eliminate waste and improve manufacture costs per car to 'Best in Class'. Improved energy efficiency provided an obvious focus. The programme began in June 1991, with the aim of reaching its target by the end of that year.

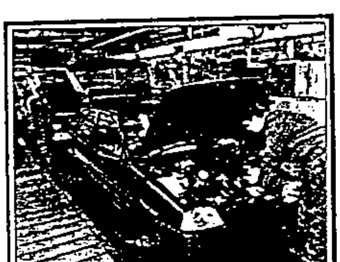
The approach

The site energy team comprised 15 core members, each one a specialist in their department, while others were co-opted as required. The team was briefed on the programme's objectives and plans were then formulated on how to achieve them.

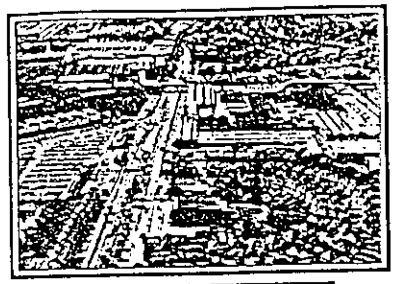
It was realised early on that success depended on involving as many people as possible, so a specialist newsletter was produced for all employees on the site. This gave information and advice on energy consumption at Longbridge, as well as on domestic energy-saving. A poster competition was run and weekly reports given to staff on their progress towards achieving energy-saving targets.

Many members of the team formed small working groups within their own departments to carry out regular 'housekeeping' audits and produce new energy-efficiency proposals. In the meantime, Rover made a corporate commitment to energy efficiency and adopted an official energy policy.

The introduction of Total Quality Management saw the site team change its name to the Energy Reduction Quality Action Team. It continues to operate to this day, ensuring existing savings are maintained and new ones identified.



Above: The Rover-Metro production line



Above: Rover Group Ltd, Longbridge site

Monitoring

For monitoring purposes, energy use was related to total clocked hours, using moving annual totals. It was found that previous to the awareness programme, there was little relationship between variations in energy use and production. This picture was transformed, largely due to the identification of energy-consuming items which were left running regardless of production activity.

Actions and savings

Most departments introduced simple weekly housekeeping audits, resulting in significant savings. Unnecessary lighting and heating, the non-productive running of machinery and compressed air leaks were all identified as the main areas of waste.

Critical success factors

There were a number of responsible factors for the programme's success. The main ones were:

- director-level commitment;
- linking with business objectives;
- simple measures of performance;
- clear targets;
- wide distribution of information; and
- on-going commitment.

Comments from Rover Group, Longbridge

The Rover Group has actively pursued energy efficiency for a number of years. In the past 10 years the energy costs of car production has fallen by 60 per cent. The company also has a rigorous environmental policy which covers both its products and facilities.

ENVIRONMENTAL MANAGEMENT AND TRAINING

Introduction

"The question is no longer whether business must change to meet the challenges of the global environment, or even when. The issue of the 1990s is how."

James Gustave Speth

President, World Resources Institute

The Earth Summit in Rio was not just fine words: it will have a direct and tangible impact on businesses everywhere – large or small. And like any shift in business conditions, it is those who are prepared who will be better able to survive and capitalise on the changes.

The Summit and its follow-up will continually push environmental issues to the forefront of national and international priorities. This will lead to increasing regulation on business and industry in developing and developed countries. It will include controls on emissions, waste disposal, use of energy and raw materials, health and safety and many other areas. But there will be other pressures too: from consumers who are increasingly environmentally aware; from corporate customers required to demonstrate environmental concern through the supply chain; from investors, financial institutions and insurers anxious about the risks; and from local government, communities and other interest groups.

It is not all bad news for business. Sound environmental management can reduce costs through lower raw material inputs, waste-minimisation or possibly recycling or the recovery and sale of by-products. And it can improve competitive advantage through sector- or product-leadership and increased marketing potential and image. In addition, companies can reduce their exposure to legal liability and future pollution clean-up costs. This was certainly the experience of Dyvell Limited.

> Dyvell, Siddcup, is a specialist company providing a complete disposal service to all producers of clinical waste. Working in such an environmentally sensitive area, its management was keen to minimise their impact on the environment.
>
> The company introduced a water-recycling scheme which meant that cooling water at the incinerator was no longer discharged to drain. The company's environmental effects have been reduced, with operating costs down by £10,000 a year. Dyvell see this as just the start.

What is environmental management?

Environmental management means controlling, in a systematic way, the environmental impact of the company's activities. This will allow a company to contain the threats to its business and exploit the opportunities. Any well-run company routinely reviews the state of the market, sets targets for success and reports internally, and often externally, on the achievement of these targets. Managing environmental performance requires many of the same skills, but because environmental performance is integral to economic performance, it needs to be examined and managed within other factors of production. These include operating costs, product development, transportation costs and overheads.

> Realon, Wimbledon (London) – a company which uses toxic chemicals – is a firm believer in the benefits of environmental management. They were pleased to participate in the BS7750 pilot scheme.
>
> The company has successfully reduced the cost of each drum of chemical used from £27 to £6. And at the same time it has reduced the solvent content in each drum from 94 per cent to just 4 per cent.
>
> Managing Director, Richard Hall, is convinced these savings would not have been possible without the full co-operation of all the workforce, and that the company's effective training policy contributed to this.

An environmental management system is an essential tool for achieving this. Unlike other company policies, which can be imposed from the top, environmental management requires the active co-operation of all employees. They are often willing and able to identify wasteful use of resources, suggest improved production or handling techniques, and take responsibility for better working practices. In contrast, careless release of pollutants into the environment by a production worker can expose a company to fines, clean-up costs, and reduce sales because of public disapproval. A successful environmental management system must therefore seek to instil a sense of environmental awareness and responsibility into all its employees.

Implementing an environmental management system

Monica Hale, an environmental specialist, sees four stages in the implementation of an environmental management system:

- Undertake an environmental review;
- Establish an environmental policy;
- Develop a strategy;
- Audit, monitor progress and review policy.

Undertaking an environmental review. Find out what must be controlled. Carry out an internal environmental audit to identify the existing environmental impact of the business. This is used as a means of identifying areas for improvement and as a baseline against which to measure progress. You will need to look at: compliance with legislation and standards; product design and manufacture; materials and supplies; energy and transport; water; and waste and hazard management. There could well be other areas too.

Establishing an environmental policy. In the light of the review you must make a commitment to tackling environmental issues. This can be done by meetings with all key staff to identify the issues the organisation needs to tackle. You will then need to draw up a general environmental statement and framework to guide company policy.

Developing a strategy. The review will reveal the areas of risk and potential gain which will be embodied in the policy. Prioritise measures and set targets: many companies find that there are a surprising number of 'no-cost' actions or those which achieve pay-back in less than 12 months. But the process may well span a number of years, involving planned expenditure on new equipment, introducing new procedures and the training of staff. On average, 70–80 per cent of the measures taken to implement the system will be organisational, the remainder being technological.

Audit, monitor progress and review policy. Maintain control. The introduction of an environmental management system is not a one-off exercise. It is necessary to monitor progress in a planned and scheduled way to ensure the continuing effectiveness of the system. Systematic audits and reviews also serve to identify new areas for improvement. Environmental legislation and controls are certain to mean more stringent requirements for the foreseeable future, so it makes good business sense for companies to review and prepare in advance, rather than have change forced upon them. A company may also consider making a public report on its overall environmental performance – pressures to do so will inevitably increase with time. This is increasingly the case in the United Kingdom.

A standard for environmental management system

Britain leads the world in the development of a standard for environmental management systems. The British Standard BS7750 has been fully piloted and is currently being enhanced to be applicable to any organisation, large or small. It specifies the elements of an environmental management system and is complementary to the international quality standard ISO 9000 and European standard CEN 2900 in its focus on management systems, specific procedures to set environmental policies, targets and compliance.

The use of BS7750 is voluntary. However, as with ISO 9000/CEN 2900, businesses in the future may require their suppliers, whether national or international, to conform to recognised environmental standards.

And as with ISO 9000 CEN 2900, which adopted the British quality management standard, the international community is currently looking at the British environmental management standard. If you are interested in knowing more about BS7750, then why not contact

BSI
Lynford Wood
Milton Keynes
MK14 6LE

or obtain a copy of
BS7750 – Environmental Management Systems

Environmental management training

Britain can also help with environmental management training. The key to successful implementation of environmental management is adequate and appropriate training for all staff, from senior management to the shop floor. The UK's lead in the development of environmental management systems means a high level of expertise in this area has already been developed. Training, education, and consultancy services to business are readily available.

A list of companies and organisations in the United Kingdom that provide training in environmental management for business people is featured in this article.

UK's contribution to environmental management

The United Kingdom Government is strongly encouraging all organisations to adopt positive environmental management: to set themselves clear environmental policies, objectives and targets; and establish management arrangements to meet these and monitor progress.

UK business is responding to this challenge by adopting new management, technology and training techniques. These improvements have taken place through all levels of business.

Bryant & May's experience of environmental management

Bryant and May's introduction to BS7750

Bryant and May Ltd, Britain's sole matchmaking company, is part of the Procordia Group of Sweden. It has a strong environmental stance and is actively developing environmental management systems (EMS) across its operations. The company was a natural choice to participate in the BSI testing of the new standard BS7750, which is compatible with the EMAS (ECO-AUDIT) regulations.

Benefits

Bryant and May have demonstrated the benefits of environmental awareness in the development of their environmentally friendlier matches, launched in the UK in 1992:

- Environmental

The environmentally friendlier matches include a new chemical formulation to eliminate sulphur, zinc and other environmentally harmful ingredients. This has been allied with the use of 100 per cent recycled material for matchboxes and all packaging.

- Financial

As a result, appreciable savings have been realised in the cost of raw materials and in waste management.

Bryant and May are confident the BS7750 standards give structure to managing environmental issues within business and are a measure of the environmental probity that purchasers may expect from such companies.

What next?

This feature can do no more than give you a feel for how environmental management can help you run your business: the extra control it offers you over your company's activities and their impact on the environment, and the potential savings you can make on your company's running-costs and resources. Like any good business tool, you have to put some effort in learning how to use it. In addition to information on training courses run in the United Kingdom, this feature includes details on useful publications that will help you decide on the best way of introducing an environmental management system which suits your business needs.

Technology Partnership Initiative Secretariat
151 Buckingham Palace Road
London SW1W 9SS
Telephone ++ 44 71 215 1037 Fax ++ 44 71 215 1089

A selection of environmental courses and seminars

Brunel Management Programme

Brunel University, Uxbridge, Middx UB8 3PH
Telephone: (0895) - 256461 Fax: (0895) - 811737

Life Cycle Assessment: Hands-on
Three-day course, 13-15 October 1993, 9-11 March and 6-8 July 1994, £525 one day, £925 3 days.
Theory ands hands-on training using LCA database and software.

Environmental Marketing
Three-day course, 10-11 February and 19-20 May 1994, £495.
Best practice and concepts in marketing and product-development.

Eco-Management Systems and Environmental Audit
Two-day course, 25-26 November 1993, 21-22 January and 21-22 April 1994, £550.
Clarifies the issues and examines different approaches, including BS7750 and the EC Eco-Management Regulation. Costs, benefits, latest developments.

Environmental Purchasing Policies – Working With Suppliers
One-day course, 27 September 1993 and March 1994, £295.
Environmental policy-making and procedures for corporate purchasing. Best practice and current trends.

Environmental & 'Green' Market Research
Two-day seminar, 9-10 December 1993 and 17-18 May 1994, £495.
Update for researchers and client professionals on research findings, techniques and messages for the mid-90s.

Environmental Audit: Hands-on
Five-day course, 15-19 November 1993, 14-18 February 1994 and 20-24 June 1994, £1,525.
Practical hands-on environmental audit training on a 'live' site. Course complies with the Environmental Audit Registration guidelines.

Green Logistics – Policies for a Sustainable Business
One-day course, 28 September 1993 and 25 March 1994, £295.
Current trends, challenges, and opportunities in warehousing, waste management, industrial packaging, and transport.

Environmental Design and Packaging
Two-day seminar, 6-7 December 1993 and 9-10 June 1994, £495.
Current issues and best practice.

Business, Strategy and the Environment
One-day seminar, 1 December 1993 and 10 May 1994, £295.
Examines the fit between corporate business strategy and a strategic approach to the environment.

Environmental Priorities for Research and Development (Seminar)
One-day seminar, 30 November 1993 and 10 May 1994, £550.
Environmental challenges and opportunities from an R & D perspective.

Environmental Training: Meeting the Needs
Two-day workshop, 23-24 September 1993 and 26-27 May 1994, £550.
How to identify the training needs of organisations and design appropriate training programmes.

Environmental Accounting, Performance Measurement and Reporting
Two-day seminar, 21-22 October 1993 and 5-6 May 1994, £525.
Financial and non-financial company performance for environmental management systems.

Environmental Management is Change Management
Two-day workshop, 7-8 October 1993 and 14-15 April 1994, £550.
Methods, skills and tools for implementing environmental change.

Centre for Environmental Management and Planning (CEMP)

AURIS Business Centre, 23 St Machar Drive, Old Aberdeen AB2 1RY
Telephone: (0224) - 2725483 Fax: (0224) - 487658

International Training Course on Environmental Assessment & Management
Annual 8-week course, next available 17 July to 9 September 1994,
£4,750+ VAT and accommodation.
Assessment of environmental impact of proposed developments and policies. Identifying impacts, evaluating consequences and agreeing mitigation measures. Of benefit to planners, consultants, government employees, environmental engineers and scientists.

International Seminar on Environmental Assessment and Management
Annual two-week seminar, next available 26 June to 9 July 1994, £1,580+ VAT and accommodation.
Sponsored by the World Health Organisation and UNDP.
Provides an overview of the main principles of environmental assessment and acts as a forum for practitioners to meet and discuss developments.

City University

Department of Journalism, Northampton Square, London EC1V 0HB
Telephone: (071) 477 8253 Fax: (071) 477 8560

Who's Talking to them about your Environmental Policy
Three-day course, early 1994, £550.
Communicating environmental policy to employees and outside groups.

Cranfield Institute of Technology

Department of Applied Energy, School of Mechanical Engineering, Cranfield, Bedford, MK43 0AL
Telephone: (0234) - 750111 x5335 Fax: (0234) - 750728

Boiler Efficiency Improvement
Two-day course, 22-23 November 1993 and 21-22 November 1994, £480.
Practices and techniques for conserving energy by measuring and improving the performance of boilers and water-heating systems.

Environmental Management and Policy
Five-day course, 7-11 March 1994, £600.
Up-to-date information on pollutants and their environmental impact, environmental legislation and standards, environmental analysis, law and cost-effective policies. Environmental management and global environmental problems are also addressed.

Energy and Clean Technologies
Five-day course, 18-22 April 1994, £600.
For managers and engineers (from all disciplines), and pure and applied scientists. Topics include energy conservation, environmental pollution, conventional and clean technologies.

Technical Environmental Management
Five-day course, 16-20 May 1994, £600.
How to survey sites and contract numerical environmental records, leading to fully costed and economic recommendations to reduce demands for energy, water, and materials – reducing waste and pollution in the process.

Slash Your Utility Bills
Five-day course, 20-24 June 1994, £600.
How to save energy, electricity and water whilst saving money and protecting the environment. Avoid pollution taxes and fines and gain competitive advantage.

Slashing Your Electricity Bill
Two-day course, the last two days of the above course (which is offered as a separate option), £240.

Environmental Auditors' Registration Association

Pier House, Wallgate, Wigan, Lancashire WN3 4AL
Telephone: (0942) - 824406 Fax: (0942) - 824030

Practical Training Course for Environmental Auditors
Five-day course, October/November 1993 and January 1994, £950 + VAT
Reviews preparing environmental policies and conducting audits. Covers environmental legislation and pollution theories. Includes a practical on-site audit.

IBC

IBC House, Vickers Drive, Brooklands Industrial Park,
Weybridge, Surrey KT13 0XS
Telephone: 071-637 4383

Risk Management, Insurance of Pollution, Environmental Impairment, Waste
Two-day course, June or September 1994, £595 + VAT.
Reviews regulatory developments, examines underwriters' expenses, US case studies, and the apportionment of liability for environmental damage.

Incinerator Technology
Three-day course, 18-20 October 1993, £785 + VAT.
Legislative framework, incinerator technology, process equipment selection, and operating experience and case studies.

Waste Water Management for Industry
Three-day course, 11-13 October 1993, £785 + VAT.
Legal requirements relating to effluent discharge, characteristics of effluents and monitoring systems, clean technology and waste-water minimisation, treatment systems for waste water, and case studies in selected industries.

Institute of Chemical Engineers

Safety, Health and Environmental Department, Davis Building,
165-171 Railway Terrace, Rugby CV21 3HQ
Telephone: (0788) - 578214 Fax: (0788) - 560833

Transport, Storage and Packaging of Hazardous Materials
One-day course, 14 October 1993, £170 + VAT.
Topics include emergency-service planning, and the practical aspects of storage and transport of toxic and flammable materials or products.

Interactive Training Materials
Training materials, consisting of tutor and student materials, packaged for use on-site at customers' premises.
Environmental courses include Aqueous Effluent, Managing for Safety, Environmental Auditing, and Air Emissions. A wide range of safety-training safety courses is also available.

Losehill Hall

Losehill Hall, Peak National Park Centre, Castleton
Derbyshire S30 2WB
Telephone (0433) - 620373 Fax: (0433) - 620346

Environmental Management Systems (BS7750 and Eco-Audit
Two-day course, 22-23 November 1993, £340
Environmental and business issues relating to environmental management systems. BS7750 and the EC Eco-audit. Skills and techniques.

Imperial College Continuing Education Centre

Room 558, Sherfield Building, South Kensington, London SW7 2AZ.
Telephone: 071-225 8667 Fax: 071-225 8668

Environmental Analysis and Assessment
A series of nine short course modules, October 1993 to March 1994.

FEES PER MODULE		
	Early payment	Late payment
Residential	£700	£750
Non-Residential	£475	£525

Technical aspects of environmental control

Robens Institute of Health and Safety

Robens Institute of Health and Safety, University of Surrey,
Guildford, Surrey GU2 5XH
Telephone: (0483) - 509203 Fax: (0483) - 503517

Environmental Services
Course details on application

The Robens Institute offers a range of courses under the heading 'Environmental Management for Industry', a number of which are for Overseas Development Professionals, including Environmental Monitoring and Management in Developing Countries, Water Quality Surveillance: Concepts and Techniques, Water Quality Surveillance Field Techniques, Oxfam-DelAgua Kit Operation and Maintenance, and Orientation for Health Workers in Developing Countries.

Assesment and Control of Chemical Hazards (COSHH)
Five-day course, 15-19 November 1993, £580.
A component of the advanced Diploma in Occupational Health and Safety course, which may also be taken as a single module.

University of Cambridge

Programme for Industry, 1 Trumpington Street, Cambridge CB2 1QA
Telephone: (0223) - 332722 Fax: (0223) - 301122

Environmental Management in Practice
Two-day course, £595.
Environmental management from a strategic, business management point of view. Includes concepts such as efficient processes, product design, marketing, customer requirements, performance standards, and management practices and procedures.

The Environmental Management of Buildings
Two-day course, December 1993, £395.
Latest tools, techniques and examples of practice in this increasingly important field.

Useful publications

BS7750: What the new Environmental Management Standard Means for your Business
Lesley Grayson BSc (Econ), ALA
British Library, Technical Communications
ISBN 094665560X

Directory of Environmental Courses 1992-1993
Compiled by John Baines and Barbara James, edited by Rachel Adatia
The Environment Council
ISBN 0905158 596

Environmental Auditing: A Guide to Best Practice in the UK and Europe
Lesley Grayson BSc (Econ), ALA
British Library, Technical Communications
ISBN 0946655588

Environmental Auditing: An Introduction and Practical Guide
British Library, Technical Communications

Environment Industry Yearbook
the Environment Press
ISBN 0951909606

Greener Marketing
Greenleaf Publishing
ISBN 1874719004

Greening the Workplace
The Trades Union Council (TUC)

The Earth Summit's Agenda for Change
A plain-language version of Agenda 21 and the other Rio Agreements
Michael Keating
Centre for Our Common Future

Using Environmental Management Systems to Improve Profits
BFP Little, B Pearson, and MJ Brierley
Graham and Trotman
ISBN 1853337544

Technology
partnership

hands-on training

TECHNOLOGY CO-OPERATION

Practical training in the operation and management of cleaner production processes and other environmental technologies is a vital component of an effective Technology Partnership.

Many UK companies already provide such training as part of their normal business relationship with clients in the UK and overseas.

To develop this aspect of Technology Partnership further, the UK Department of Trade and Industry (DTI) may give assistance to UK companies wishing to help senior business people from developing countries to acquire up-to-date practical experience of modern technology, management and production methods.

Participating UK companies are particularly encouraged to give their visitors the widest possible experience of relevant UK technologies and expertise.

The DTI will reimburse up to half the eligible costs of approved training including:

- travel to and within the UK
- accommodation
- medical accident insurance
- training courses outside the company where these are appropriate.

Application for assistance under these arrangements should be made by UK companies proposing the training.

Business people in developing countries are encouraged to discuss this option with their UK business contacts.

Further advice and information on the scheme - known as Hands-On Training for Overseas Decision Makers can be obtained from:

Harley Berry
Department of Trade and Industry

Tel: 071-215 6568

Recycled Paper

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HOLD FOR RELEASE

World Bank

1818 H Street, N.W., Washington, D.C. 20433, U.S.A. • Telephone: (202) 477-1234

Bank News Release No. 94/ S31 EAP

Contact: Peter L. Stephens
Phone: (202) 458-0344
Fax: (202) 477-1837

EMBARGO: A.M. NEWSPAPERS AND BROADCAST
MONDAY, DECEMBER 6, 1993

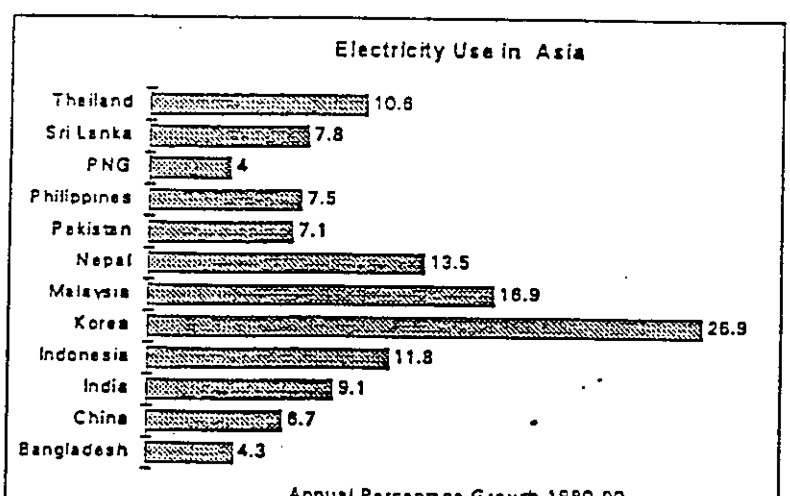
ASIA ENVIRONMENT STRATEGY

Washington, D.C., December 6, 1993 -- A new World Bank discussion paper recommends a series of sweeping policy changes governments in Asia should make to halt and begin to reverse the widespread damage to the environment. Several of the proposed steps involve little or no cost, though all are designed to place a greater value on the environment and basic human welfare. The paper -- *"Towards An Environmental Strategy For Asia"* by Carter Brandon and Ramesh Ramankutty -- identifies market and policy failures as fundamental causes of Asia's environment troubles. Increases in population, industrialization and rapid movement of people to cities also are placing pressure on natural resources.

Another cause is "the common perception (caused, in part, by lack of information) that there is a direct tradeoff between environmental protection and economic growth." There is, in fact, no such tradeoff, the authors argue, and rational policies will save more than they cost, increasing both economic efficiency and the welfare of the populace.

The authors specify water pollution, air pollution, solid waste management and inappropriate land use as four key issues needing attention in Asia's cities. In rural areas, forests and marginal lands are under pressure from farmers, commercial logging, and excess demand for firewood and fodder. Land degradation, deforestation and loss of biodiversity are widespread.

"We may not have all the data we'd like, city by city, and country by country -- but what we're seeing in Asia is exponential growth in pollution, traffic, and toxic wastes," Mr. Brandon said. "And what I mean by exponential growth is this: while the East Asia economies are doubling every ten years or so, pollution, energy use, and the number of vehicles on the road are increasing by factors of five, eight and even ten. We know, therefore, that the pollution



trends are many times greater than the capacity of the environment to absorb it all, and that these trends have to be altered.

"The solutions don't lie in stopping growth, but in making that growth more sustainable by recognizing that abatement costs we face today are far less than what we will face in the future, and by recognizing that the quality of life -- and not just our incomes -- matters a great deal.

"The key to improved environmental management is really in improved economic efficiency. We've seen worldwide that the dirtiest firms are in the most stagnant economies. In Asia, as part of the powerful economic expansion taking place, we need to be sure that the incentives are in place for firms to buy the latest -- and cleanest -- technologies. By the year 2010, 85% of all industrial equipment in the newly industrializing countries (NICs) will be new.

"The global issues that we all know about -- such as global warming, ozone, and biodiversity are, quite frankly, lower on the list of priorities for developing countries. To address the global issues, we're working to expand the work of the international funds such as the Global Environmental Facility, the Montreal Protocol, and the large non-profit movement to support environmental projects across Asia."

The paper suggests a framework for improving environmental management, including:

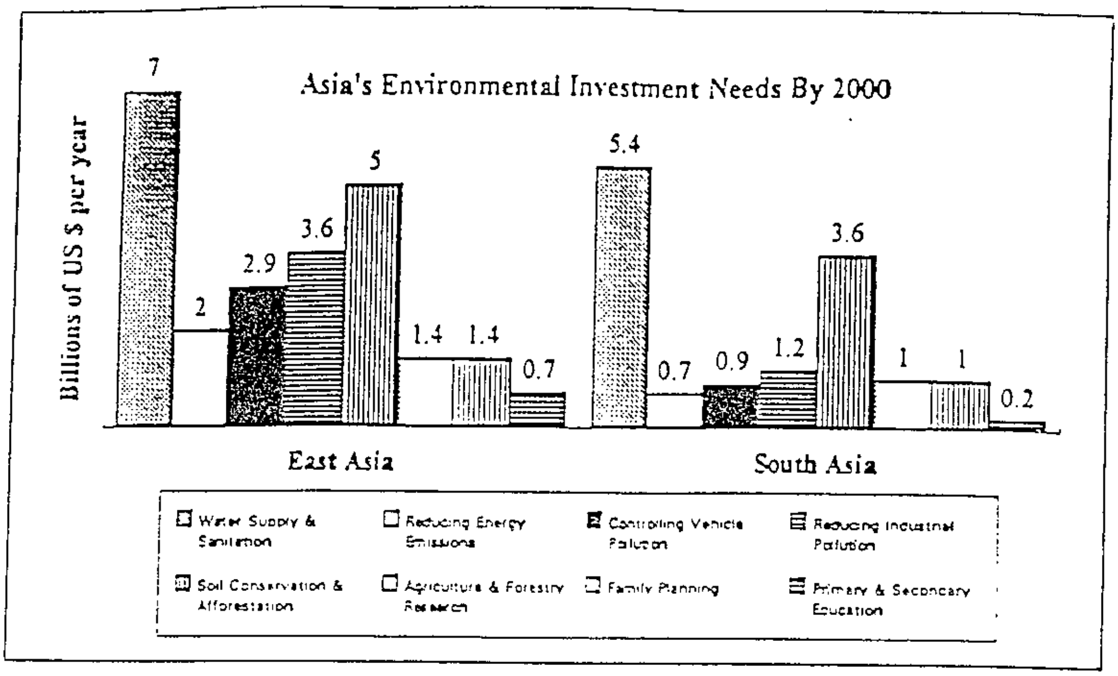
- **Priority setting** -- given the scope of the problem and the limited financial and administrative resources available to deal with it, Asian countries should decide what is politically and economically feasible.

- **Policy reform** -- this involves using pricing of resources, taxes or marketable permits to change polluting behavior. Full-cost pricing of environmental inputs, such as air, water and timber, are vital if consumption is to be brought back to sustainable levels. The policy stance should also use regulatory or administrative measures to impose quantitative limits, enforce property rights, and screen public and private investments. It would also make more use of extra regulatory approaches, such as introducing public disclosure requirements and increasing environmental liability litigation.

- **Strengthening public institutions** -- only with effective institutions can a country define its environmental goals effectively and enforce them. Weak institutions, including research and administrative agencies, limit the choice of policies available to a country.

- **Increasing public and private investment** -- the World Bank estimates that Asia needs to spend about $38 billion a year by 2000 -- two-thirds of it in East Asia -- to make environmental policies more sustainable. Such outlays are beyond the reach of governments and private funds will be needed to make up the gap.

- **Improving technologies and technology transfer** -- these are essential to maintaining economic growth as populations grow, cities become larger and the resource base is degraded. Clean technologies will be most available in Asian countries with open trade regimes and business climates which foster foreign investment.



The report calls the elimination of subsidies on water, electricity and fuels -- to reduce waste and inefficiency, and financially strengthen the companies providing these services. The report notes also that the poor are more likely to be hurt by urban pollution, and investments in cleaner air and water are therefore likely to benefit poor people. But the picture elsewhere is more complex.

"In rural areas the poor are often disproportionately, and usually inadvertently, the perpetrators of environmental degradation," the report says. The environmental policies required to bring about increased sustainability involve both positive and negative impacts on the poor. reforms in land tenure, to the extent that the poor gain tenure, would be positive. The truly landless, however, would be increasingly cut off as others gain title. Solutions to the landless poor have to be site and area specific."

The Director of the Asia Technical Department at the World Bank, Mr. Daniel Ritchie, said that "the environment in Asia is one of the greatest development challenges in the world today. The reason is not only the complexity of environmental issues themselves but also the complex linkages between growth, population, poverty, and the environment.

"Asia has already dramatically shown that economic growth can reduce population growth rates and the incidence of poverty. However, to sustain the recent economic gains, greater priority will need to be given to the development of sound environmental policies and of public and private institutions capable of implementing these policies."

Mr. Ritchie said that what was most needed was "political will, commitment and action -- in the form of investments, education and policy reform -- to reverse the alarming environmental degradation still being observed."

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Note: Review copies of "*Towards An Environmental Strategy For Asia*" are available free to the media. Send your request by fax on company letterhead to Peter Stephens at (202)477-1837. Others may order the study from World Bank Publications at (202)473-1155 or by fax (202)676-0581.

THE ENVIRONMENT SECTOR

BACKGROUND

Thailand's rapid industrialisation has increased the country's capacity for growth, improved per capita income and generally enhanced the individuals quality of life. However, it is not without its drawbacks.

Uncontrolled industrial development, poor planning, and an overall lack of awareness of the danger to the fabric of the environment caused by modern manufacturing systems have given Thailand a serious and growing pollution problem.

A major focus of the environment protectionist lobby is the area of *SAMUT PRAKAN* which according to one critic, has turned from an industrial heartland to an industrial cesspool. A survey carried out by the Overseas Economic Co-operation Fund (OECF) of Japan has estimated that approximately 30% of the factories in Samut Prakan do not treat their waste water before discharge into the local rivers or canals. The study also concluded that industrial air pollution in the same region was reaching critical levels. It is thought that Sulphur dioxide emissions from the nearby power station together with the pollutants released into the atmosphere by factories in the region, may reach 414,570 tonnes per year The Governor of Samut Prakan has stated that of the 4,000 factories, more than 2,000 of them have pollution problems and, in at least 31 of these, the situation is very serious. Seasonal flooding has brought polluted water onto the streets of the residential areas.

CURRENT SITUATION

Government action currently appears to be concentrated on re-locating the offending factories and at treating the pollution sources, the so called 'end of pipe' solution. Incentives, such as Government loans and tax concessions, are offered to factories willing to re-locate. These offers are promoted by the *BOARD OF INVESTMENT OF THAILAND* (BOIT). The package of incentives to be ratified by the Cabinet this month (April 93) include low interest loans for up to 60% of the cost of re-location and a five to seven year tax holiday, plus a 20% discount on utilities and infrastructure costs. The incentives will be offered to industries moving out of the Bangkok and Samut Prakan areas to a number of designated areas (identified as Zones 2 and 3). The incentives vary according to the relative development needs of the area. For example, Zone three which covers the less developed provinces will receive an eight year corporate tax holiday and excemptions from import tax on machinery and equipment. Zone 2 establishments receive only seven year tax concessions as opposed to the normal BOIT five year tax grace period. The Government is considering whether these incentives could also be offered to those industries moving into industrial estates. Critics see these incentives as merely serving to export the pollution problem, and not solving it, and citing the example of Taiwan who some twenty years ago attempted to solve a similar problem by re-locating by zones the industries congregating around Taipei. This served to spread the causes of pollution around the country rather than reducing it by remedial action. Critics of the Thai

Government policies also suggest that the incentives offered by the Government and the lack of regulatory legislation, will attract those foreign industries who are finding it expensive or difficult (or both) to operate under their own Government's legislation, and see Thailand as being an easier option.

POTENTIAL IN THE MARKET

Many influential figures are now lobbying for action to protect the environment and to bring about controls to curb the excesses of pollution. However, the initiative started under the Anand Government is still directed to wards treatment rather than prevention. In the short term, this means that budgets are likely to be spent on such items as waste water treatment equipment, and air pollution control systems.

Environmental markets (which cover a wide spectrum of products and services) are set to develop rapidly in the next few years. Growing public awareness and increasing calls for action (albeit on a curative rather than preventative basis) have opened a window of opportunity for UK manufacturers and exporters of equipment applicable to environmental protection and improvement. Specifically, the Board of Investment of Thailand, (BOIT) has identified the following sectors as being of highest priority : Municipal solid waste treatment and disposal; vehicle emission control equipment; pollution measurement; clean technology for the power industry; Industrial and Municipal waste water treatment; and hazardous substance, handling and disposal.

LEGISLATION IN PLACE

Despite criticizm already mentioned, some official action has already been taken, namely ;

- the Wildlife Conservation Act of February 1992,
- the Hazardous Substances Act of April 1992
- the Improvement and Conservation of National Environmental Quality
- Act of June 1992
- and the Factories Act of June 1992

The Seventh National Plan (1992-1996) highlights, as a prime objective the improvement in quality of life and environmental protection, for which a US dollar 200 million Environment Fund as already been established. From the Fund, a sum of US dollar 80 has already been allocated to the town of Pattaya in order that the Pattaya authorities can implement a regional clean up programme, concentrating on waste management and pollution control.

PROBLEMS

Although there is a growing awareness of the need for environmental protection and the Government is gradually introducing the necessary legislation, a weakness exists in the actual enforcement. An example is the many industrial units that have installed waste water treatment plants but for reasons of cost and operation speed, continue to dump their effluent into the rivers or canals. A similar situation could arise with vehicle exhaust emission testing. Legislation is useless without a reliable enforcement system.

PRIORITIES

-Water -

An estimated 1.4 million cubic metres of waste is dumped into the lower Chao Phraya river basin from Bangkok each day. Approximately 25 % is from industrial sources. Mecury levels range from 10 to 40 times more than acceptable limits. Waste Water treatment, both Municipal and Industrial will be a priority action sector in the 1990s This will not only include the supply of equipment but operational training and the introduction of new management tecniques. The BOIT is willing to consider any proposals from equipment suppliers, consultants and service companies who would be interested in public, private sector or industrial estate, waste water treatment projects.

In November 1991, the Government allocated US dollars 1.2 billion for environmental improvement of the nation's waterways. From this amount, a sum of US dollars 800 million will be spent on a central waste water treatment and sewage system for Bangkok. Bids have been received from international consortia and NORTH WEST WATER of the UK is known to be the successful lowest bidder. Other municipalities will have similar opportunities, probably on a build operate and transfer basis, in the very near future. iN 1992, the Industrial Finance Corporation of Thailand (an environmentally aware Finance House) issued 1.2 million Baht of credit to 27 waste water treatment projects requiring equipment and services.

- Waste -

Thailand's booming economy produced proportionate problems of solid waste disposal. Bangkok alone, generates an estimated 5,000metric tons of waste per day (1.75 million metric tons pa) and is expected to increase to 13,800 mtpd or over 5 million tons pa by the year 2007. Landfill sites will have reached capacity long before that date. Incineration has been considered but rejected in favour of landfill disposal on grounds of cost, in a master plan drawn up by the Japan International Co-operation Agency.

Bangkok, the major source of solid waste, has three regional disposal facilities, owned by the Bangkok Metropolitan Administration. All three facilities have open dumping areas and two have composting plants. It is estimated that one site is virtually at the limit of capacity and the other two have an economic life of five years remaining. In 1988 the BMA awarded the first contract for a private company to transport and process garbage from one of the BMA owned and operated dumping sites. Despite some initial problems, the operation is deemed successful and further plans for privatized garbage collection transportation and disposal are in the offing.

Re-cycling is carried out by street scavangers who collect and sell on to recycling plants, and the BMA collection crews who unofficially recover suitable materials from the garbage collected and sell to re-cycling shops. Even so, enough re-cyclable material remains in the garbage to attract scavangers at the BMA dumps. Almost all local production of paper, glass and plastic, in Thailand, uses a proportion of recycled material. However, quality remains a problem in the recycling industry which could benefit from foreign technology and expertise as well as investment.

OTHER OPPORTUNITIES :

AIR POLLUTION - VEHICLES Thailand has one of the fastest growing vehicle populations in the world. The Bangkok area has 51% of the country's total consumption of energy consumed by 2.3 million vehicles, which contributes 64% of Nitrous Oxide 87% of carbon monoxide and 41% hydrocarbons Most of the atmospheric lead in Bagkok is due to the use of leaded fuels. The result is that average blood lead levels in Bagkok are three times higher than the average in the West. Unleaded gasoline was introduced in May 1991 and by restructuring the fuel tax ULG became lower in cost than standard fules. New legislation setting the standards for vehicle exhaust emission standards are expected to be passed this year, backed up by requirements for a vehicle inspections programme, for which Baht 28 million has been earmarked as an initial budget. Opportunities will exist for exporters/suppliers of test and monitoring equipment, as well as training and consultancy services.

-INDUSTRIAL AIR POLLUTION. Industry is the major contributor to air pollution in Thailand and account for more than 30 % of energy consumption and 21 % of the sulfur dioxide emissions, 12 % of nitrogen oxide and 56 % suspended particle matter. These figures do not include industry's indirect contribution to air pollution through its purchase of generated power. Thailand's power generation programme is growing rapidly (13.4% in the period 1985 to 1990), and installed capacity is expected to more than double over the next decade to about 19,000 MW by the year 2001. and the domestic fuel source - lignite and coal - are considered dirty fuels. Investment totalling US dollar 30 billion will be spent on increasing the power generation capacity and the need for pollution control equipment will feature in the project specifications.

-HAZARDOUS WASTE ie toxic chemicals are increasing as Thailands industry increases in size and in sophistication. The requirement for equipment and tecniques to handle , treat and dispose of toxic waste is increasing rapidly. Thailand has one central waste treatment facility located at Bang Khuntien in Thonburi. It handles heavy metal contaminated waste water and solid wastes and treatment capacity is 110,000 tons per year although it is currently believed to be working well below capacity due to a reluctance of some establishments to use the facilities on offer on grounds of extra cost. The Plant is operated by a private sector company on a five year lease from the Government. It operates on a fee basis and as an incentive to smaller establishments, the Government subsidises the cost. Privatisation of Hazardous Waste treatment facilities is relatively successful and the Ministry of Industry has plans to build four more waste treatment plants. Construction sites for two have been selected and it is hoped that they will be operational by 1994.

- RENEWABLE ENERGY the use of biomass energy sources have not been explored, and there is potential for systems using agricultural waste to produce energy. The waste from rice and sugar cane processing is used as boiler fuel in the food processing industry, but opportunities exist for its use in small power generation plants.

- ENERGY EFFICIENCY Thailand is less efficient in energy consumption than its neighbours, using 1.5 kg carbon for each unit of GNP, whereas Malaysia uses 0.9 and Korea 0.3 and the USA 0.2kg. However, Thailand has initiated an energy efficiency programme, and the three power sector state owned utilities (Electricity Generating Authority of Thailand,-EGAT,- the Provincial Electricity Authority -PEA-and the Metropolitan Electricity Authority, - MEA-) have a co-ordinated energy conservation programme, the first in Asia. A budget of 4.6 billion Baht has been earmarked for the first five years which is projected to save about 2 to 3,000 MW over the next ten years. The Demand Side Management (DSM) office will provide financial incentives for energy efficiency programmes. There is potential therefore, for manufacturers or suppliers of energy efficient motors, improved refrigeration and air conditioning systems, lighting systems The BOI have carried out a separate investment opportunities study on this sector, listing the estimated market potential in 1994 for a selection of 32 energy efficient products.

The International Bank for Reconstruction and Development (the World Bank) has approved a loan of US dollars 109 million to the Metropolitan Electricity Authority (MEA) to finance a project to improve and expand the MEA power distribution system as well as providing technical services to MEA, including the introduction of Demand Side Management, improvements in management and operational efficiency and increase levels of safety and environmental acceptability in design and operational practice. In addition to the IRBD loan, the Asian Development Bank (ADB) will provide a further USD 109 million, the MEA itself will provide USD 147 million and USD 187 million will be raised from other borrowings. There are also loans specifically to promote Electrical Energy Efficiency, from the Global Environmental Trust Fund (GET) for USD 9.5 million, from OECF (Japan) for USD 25 million, and from the Australian Government for USD 6.0 million. The Government of Thailand will provide the equivalent of USD 148 million. The IRBD loans are repayable over 17 years at the Bank's standard variable interest rate.

PRIVATISATION

The Government of Thailand is committed to a policy of privatisation and has taken action towards the privatisation of EGAT, namely the passing of the amendment of the EGAT Act which has allowed EGAT to establish a subsidiary company which will in due course be partially sold to the public. The Government is also seeking to purchase electrical power from private power producers.

CONCLUSIONS

The Environment Fund currently totals 5 million Baht. Other funds are available from various other Ministries and Municipalities. That there is an environmental crisis particularly in the Bangkok area, is not doubted. There is growing public demand for action and legislation is slowly being put in place. However, power to re-inforce the law needs beefing up. Priorities are difficult to identify as all varities of pollution are plainly visible, but waste water treatment would appear to attract greater attention than anything, probably due to the esteem that Thailands waterways have for the people. The huge Bangkok waste water treatment project is the first in a series of very large similar plants needed urgently throughout the country. Air pollution is most serious in Bangkok city. Vehicle emission control equipment and industrial plant de-tox systems, as well as energy efficient systems.

Manufacturers of equipment for the environment sector in general would do well to consider a joint venture for local manufacture or assembly. Thailand has a population of 55 plus million but its level of industrial sohpistication suggests that it should be regarded as a manufacturing base for the regional market of 320million. Reasonably low labour costs, good communications, ease of access to neighbouring markets which are just beginning to expand make Thailand the gateway to neighbouring less developed but growing markets.

A list of key public sector projects is at Appendix A

A note of the projects attracting World Bank financing is at Appendix B

A Summary of the Market potential for Energy Efficient products is at Appendix C

An outline of the incentives offered by the BOIT is at Appendix D

Commercial Section
British Embassy
Bangkok

June 1993

SUMMARY OF
KEY ENVIRONMENTAL PROJECTS, 1992

EXECUTING AGENCY	ENVIRONMENTAL SUB-SECTOR	LOCATION	CAPACITY	INDICATORS OF MARKET POTENTIAL
DIW (Department of Industrial Works)	Industrial Waste Water Treatment	Rangsit, Suksawat		Baht 400 million World Bank portion: $US 700,000
INTERIOR MINISTRY	Waste Water Treatment	Chao Phraya, tourism areas		Baht 4 billion
MOI Ministry of Industry	Privatized Hazardous Waste Treatment	Central Thailand, 3 plants	200,000 tonnes/ year	Baht 979.75 million
MOSTE Ministry of Science, Technology, Environment	Centralized waste water treatment	Pattaya	30,000 m3 per day of waste water	Baht 2 billion
EGAT Electricity Generating Authority Thailand	Energy-efficiency Equipment, Demand Side Management	Thailand		Bt 4.6 billion *
IEAT	Privatized Waste Water Treatment, equipment and monitoring systems.	Industrial Estates, Eastern Seaboard	Will vary, depending on factory, industry	US $56 Million
BMA Bangkok Metropolitan Administration	Centralised Waste Water Treatment	Central Bangkok	350,000 m3 per day, for BMA-1	BMA-1 Baht 10 billion BMA-1: Baht 10 billion (projected)
Hua Hin, Municipality	Water Filter Plant	Hua Hin	12,000 m3 per day, water filtrat ion and rationing	Bt 57 million

* BOI Study projected 1994 market for energy efficient products and services.

PROJECTS IN THE ENVIRONMENT SECTOR ATTRACTING WORLD BANK FUNDING

1) Second Gas Transmission Project (submarine pipeline from Gulf of Thailand to Bangkok area). Client: The Petroleum Authority of Thailand (PTT). Appraisal Mission scheduled July 1993.

2) Small Industry Finance Corporation (SIFC : a commercial bank) - under consideration.

3) MAE L-B Water Diversion Project. (Two Rockfill dams and a 600 MW pumped storage scheme). Feasibility Study in progress. Client: EGAT.

4) Energy distribution (expansion and improvement of power distribution grid). Client: MEA. Decision by World Bank May 1993.

5) Industrial Pollution Control (Waste water and hazardous residents). Consultants appointed, EC funding available by project on hold at request of Thai Government. Clients: Ministry of Industry and Ministry of Science, Technology and Environment.

6) Forestry (Rejuvenation of degraded forests, lands, and designation of National Parks) Project underway. Client: Royal Forestry Department.

7) Lam Takhong Pump Storage Project (Power supply for peak demand using, hill reservoir and Stage I, - 2 x 250 MW pump/turbine generators). Under consideration, appraisal scheduled for June 1993. Client: EGAT.

June 1993

Summary of 1994 Market Potential for Energy-Efficient Products in Thailand

The technologies are ranked in descending order according to the 1994 market potential for efficient products (see the rightmost columns). Due to the mixed quality of available data, these figures give a rough estimate of the potential baht and dollar value for sales of energy-efficient products by 1994. 25 baht (B25) equals approximately US$1.

Product	Potential efficiency increase	Added cost	Value of 1990 domestic production (1,000 B)	1988-90 market increase (%)	Value of 1990 imports (1,000 B)	1988-90 market increase (%)	Value of 1990 exports (1,000 B)	1988-90 market increase (%)	1990 market for product (B million)	Estimated 1994 market for product (B million)	1994 market for efficient products (B million)	1994 market for efficient products (US$)
Air conditioners (<2 tons)*	30-40%	20-30%	4,700,000	66	82,000	163	346,000	411	4,782	7,651	765	30.6
Refrigerators (domestic)	25-50%	10-15%	4,053,601	56	170,000	80	920,000	219	4,224	6,758	676	27.0
Compressors	5-20%	10-40%	1,077,000	64	2,634,000	81	234	-14	3,711	5,938	594	23.8
Insulation	30-50%	B200/sq.m.	360,000	--	--	--	--	--	360	576	576	23.0
Motors	2-10%	10-40%	868,075	59	2,564,148	120	2,088,203	129	3,432	5,492	549	22.0
Fans (<125 watts)	60%	10-40%	1,679,547	33	217,236	59	1,683,400	129	1,897	3,035	303	12.1
Air conditioners (>2 tons)	25-30%	10-20%	not avail	--	520,000	12	1,126,000	308	1,646	2,634	263	10.5
Fluorescent tubes	20%	110%	1,300,000	38	136,213	102	85,710	168	1,436	2,298	230	9.2
Light fittings	30-40%	50-100%	1,000,000	40	178,000	51	89,000	40	1,178	1,885	188	7.5
Solar water heaters	50-100%	B5-10,000/sq.m.	31,000	15	85,000	15	--	--	116	186	186	7.4
Compact fluorescents	60-75%	1,500-6,000%	none	--	105,000	80	none	--	105	168	168	6.7
Vapor/steam boilers	5-10%	25-100%	500,000	--	506,000	28	2,000	443	1,006	1,610	161	6.4
Thermostats	10-20%	B350-2,700	7,000	20	83,000	20	--	--	90	144	144	5.8
Rice cookers	11%	80%	720,000	97	--	--	--	--	720	1,152	115	4.6
Adjustable speed drives	15-40%	B2,500-10,000/HP	10,000	20	40,000	20	none	--	50	80	80	3.2
Fluorescent ballast	50-90%	150-1,000%	360,000	29	25,980	267	14,170	19	386	618	62	2.5
Bldg energy mgt systems	10-20%	B5m	none	--	35,000	200	none	--	35	56	56	2.2
TOTAL			16,666,223		7,381,577		6,354,717		24,753	39,605	4,999	199.9

NOTES: Added costs for efficient products are based where possible on Thai prices. Import duty and taxes are added for imported efficient products. Domestic production figures are from the Ministry of Industry, and include products produced for export. Import and export figures are from the Customs Department. In cases where data were not available, estimates were based on interviews with manufacturers. 1994 market estimates are based on projected growth in domestic production and imports. It was assumed conservatively that four-year growth in market value for 1990-94 would equal 60% for all products. The 1994 market estimate for efficient products assumes that 10% of the products sold in each category in 1994 will be efficient. For products such as solar water heaters and thermostats that inherently save energy, the estimate of the total market and the efficiency market are the same.

AN OUTLINE OF THE BOIT INCENTIVES

The extent of foreign ownership of the registered capital varies according to the type of venture, namely:

-agriculture, animal husbandry, fisheries, mineral exploration and mining, and the services sector, not less than 51% of the registered capital must be held by Thai nationals.

- but projects with an investment capital of over 1,000 million baht, foreign investors may hold a majority of the shares (up to 100%) fir the first five years only, thereafter Thai nationals must hold at least 51%.

- a manufacturing project in which not less than 50% of total sales is for export, the foreign investor may hold a majority of the shares.

- a manufacturing project in which not less than 80% of total sales is to be exported the foreign investor may hold all of the shares.

- during the 7th Development Plan(1992-1996) requirement and limitations of foreign ownership will be established on a case by case basis by the responsible Ministry, for the following sectors: Development of Transportation Systems; ENVIRONMENTAL CONSERVATION AND RESTORATION; and direct involvement in technological development.

Incentives offered vary also according to location:

- Projects located inZone I (ie Bangkok,Samut Prakan, Samut Sakhon, Nakhon Pathom, Nontaburi and Pathum Thani) which export not less than 80% of sales, or locate the project in an industrial estate or promoted industrial zone, will receive a 50% reduction on import duty on machinery and a three year corporate tax holiday.
- those projects exporting not less than 30% of total sales will receive exemption on duty for raw, or essential materials for a period of one year.

- Projects located in Zone 2 (ie Songkhram, Ratchburi, Kachananburi, Suphan Buri, Ang Thon, Ayutthaya, Saraburi, Nakhon Nayok, Chachoengsao and Chonburi) will receive 50% reduction on machinery, three years corporate tax holiday extendable to five years if the project is located in an industrial estate or promoted industrial zone, and exemption on import duty for raw material for one year providing that export are not less than 30% of sales.

- Projects located in Zone 3 (the remaining 57 provinces plus Laem Chabang Industrial Esate) will receive 50% reduction on import dutr for machinery, a six year corporate tax holiday extendable up to eight years for projects located in the industrial estates, exemption from duty on raw materials for five years, providing 30% of sales is for export, plus certain special privileges under the scheme, including reduction of 50% on corporate tax for five years after the exemption period, double deduction from taxable income for cost of utilities for a period of ten years after first sales and 25% deduction from net profits of the cost of the project's infrastructure.

Certain projects - viz Basic Transportation Systems, Public Utilities, Environmental Protection and /or Restoration and Basic Industries, will regardless of the above receive eight year corporate tax holiday, and a 50% reduction on import duty for machinery.

The above outline is intended only as a guide and British Companies seeking further information or clarification, should contact one of the following:

The Commercial Section of the British Embassy Bangkok,
143 Wireless Road,
Bangkok Thailand,
Fax (662) 255 8619
or via your nearest Department of Trade Office.

The Office of the Board of Investment of Thailand.
555 Vipavadee Rangsit Road,
(opposite the Central Plaza Hotel)
Bangkhen, Bangkok. 10900
Fax (662) 271 0777 Telex 72435 BINVEST TH

Advice on joint venture investment, BOIT incentives and sector priorities, may be obtained from the BOIT consultants:

SEAMICO Business Information and Reasearch Co Ltd
77/10 Sukhumvit Soi 4 (Nana Tai)
Bangkok 10110 Thailand.
Fax (662) 255 2296

<u>Financing Environmental Protection in Asia</u>

Bangkok, Dec. 2, 1993

Carter Brandon, Asia Environment Division, World Bank

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1. Some facts (and other assertions).

2. What to do about it.

3. What the World Bank is doing.

4. Financing the gap.

1. Some facts (and other assertions)

Pollution is growing several times faster than the economy at large. Economic growth is high; increases in pollution are truly exponential.

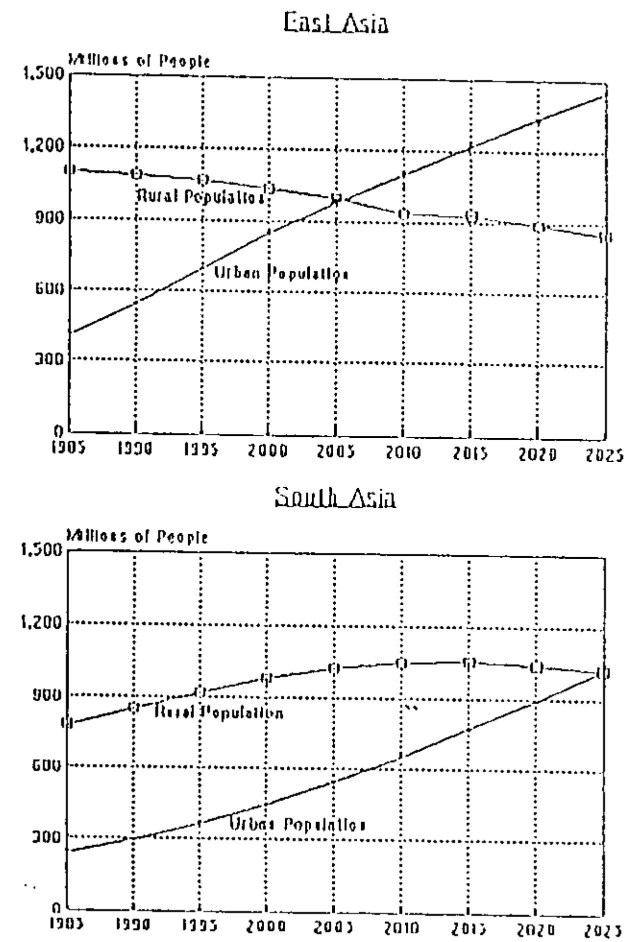
- all population growth is in urban areas

- industrial pollution is growing 4-5 times faster than the economy

- energy use is growing 2-3 times faster than the economy

- vehicle populations are growing 2-3 times faster than the economy

Growth of Urban and Rural Population in Asia Regions 1985 to 2025

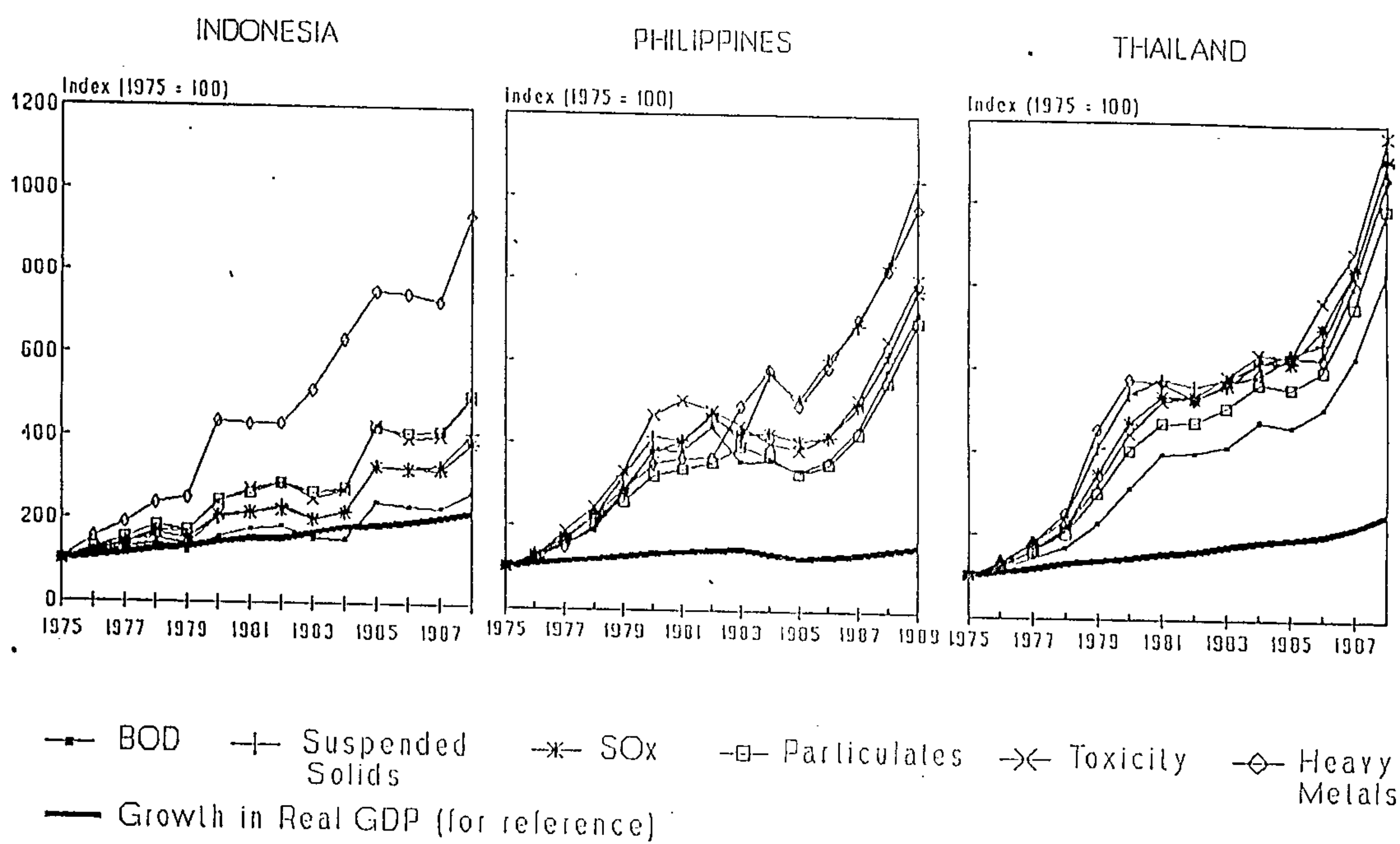


Source: United Nations, "World Urbanization Prospects 1990", 1991.

Figure 1

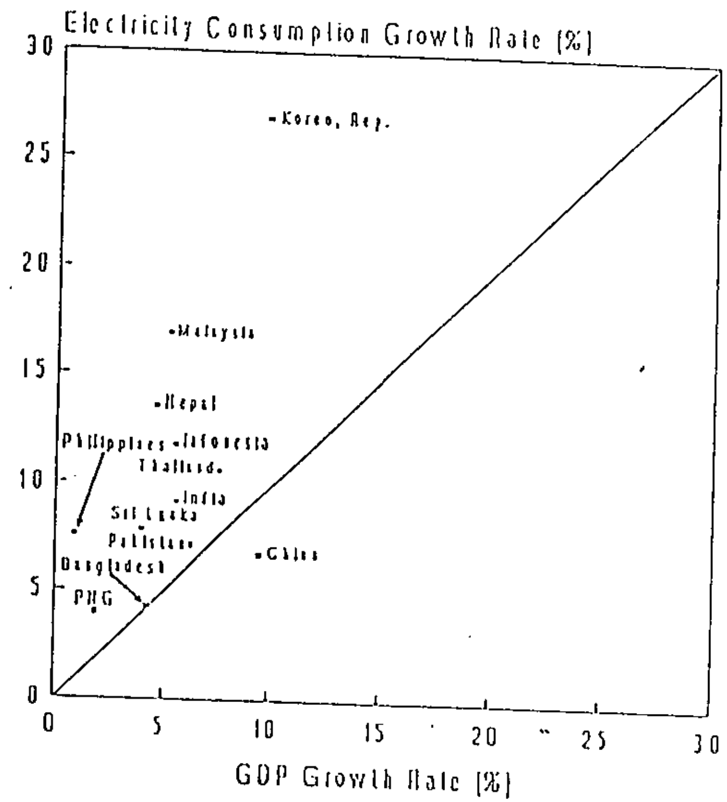
Figure 3

Total Industrial Pollution in Selected Asian Countries



Source: Calculated with data from IPPS, World Bank, 1992.

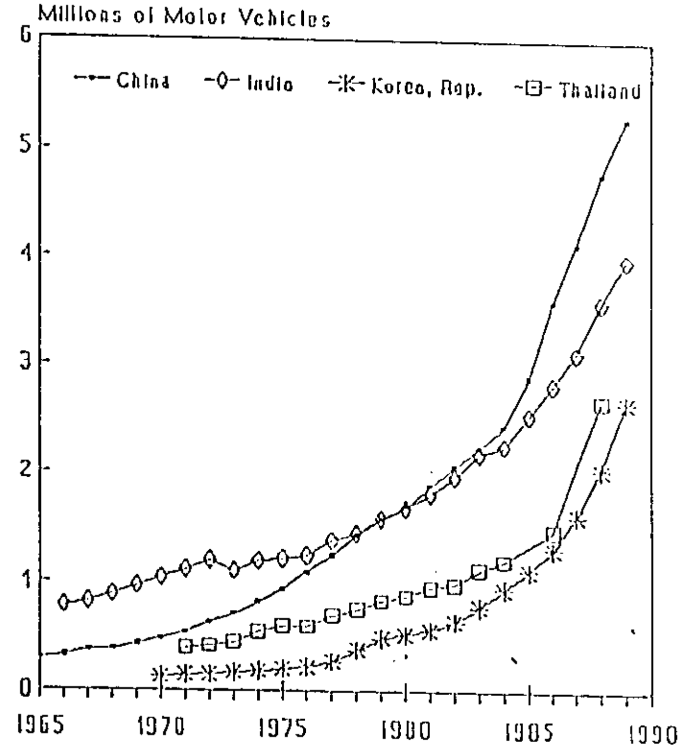
Growth of Electricity Consumption and GDP in Selected Asian Countries 1980-90



Source: World Bank data.

Figure 4

Total Motor Vehicles in Use in
Selected Asian Countries



Sources: MVMA, 'World Motor Vehicle Data', 1991; International Road Federation, 'World Road Statistics' various years.

Figure 2

Health and productivity impacts cost real money, and are not "only" quality of life issues. Health and productivity losses cost billions per year in the large Asian cities.

Annual Cost of Air Pollution and Traffic Congestion	
	US$ per year
Seoul	$3.6 billion
Bangkok	$1.3 - 3.1 billion
Jakarta	$400 - 800 million

These estimates include health costs and productivity costs (fuel spent, time wasted, and production delayed).

Annual Health Impact of Air Pollution in Bangkok and Jakarta	
	# of people in each city, per year
Deaths	500 - 2,000
Sickness (doctor's visits or hospitalization)	10,000 - 100,000
Restricted Activity Days	3 million - 10 million
Respiratory Symptom Days	40 million - 200 million

- On top of the direct health costs, quality of life matters a great deal. The public increasingly demands it.

- The cost of all this pollution, in the big Asian cities, is nearing 10% of urban GDP. The cost of cleanup is perhaps 1-2% of urban GDP.

- Growth is not the problem. Rather, it provides an opportunity for change and investment.

2. What to do about it

Focus on new investment. Provide the right incentives for greater efficiency across all sectors, including energy, transport, industry, water, forests. By 2010:

- 85% of industrial investment will be new
- 90% of vehicles will be new.

In terms of existing industry and energy plants, go after the biggest polluters. In terms of existing vehicles, start with cleaner fuels, and then work on providing alternatives to the car.

Pollution prevention is cheaper than clean-up.

- Avoid the Japanese "bubble" -- i.e., a surge in pollution abatement investments, up to 25% of all industrial investment.

- Also, avoid the U.S. experience with over-regulation of the "command-and-control" type, which dictated technologies and not overall objectives.

Learn from others, and get governments to use more market oriented approaches. It's just as well that not all current regulations on the books in Asia are not enforced. Environmental agencies have been weak, unfocused, and need to establish priorities.

We need to recognize the weakness of government, lack of information, some incidence of corruption, and the need to involve the private sector and the public.

The World Bank advocates removing subsidies, raising prices, and/or levying taxes on items that lead to environmental damage -- such as fuels, pesticides, water, transport, garbage, sewage, and forests.

We also advocate taxes on pollution. The "right to pollute" shouldn't be free.

3. What the World Bank is doing

We do studies, lend assistance to government agencies, give policy advice, and make loans. In terms of lending, our environment-related volume has doubled since 1990-1992 -- to $1.2 billion per year in Asia.

- industry and energy loans, 34%
- urban infrastructure, 22%
- agriculture and natural resources, 28%
- policy reform, government institutions, 15%

Although we generally advocate smaller governments, environmental protection is one area where we support stronger government: We help governments address the details of price and tax reform; information needs; monitoring and enforcement; and public and media participation in environmental protection.

4. Financing the Gap

We estimate the investment needs for protecting the environment in Asia to be about US$38 billion per year by the year 2000.

Estimates of Additional Investment Required for the Environment in Asia, by the year 2000	
	US$ billions per year
Water supply and sanitation	$12.4
Reducing emissions from energy generation	2.7
Cleaner fuels and vehicle emission controls	3.8
Industrial pollution control	4.8
Soil conservation and reforestation	8.6
Additional agricultural and forestry R&D	2.4
Family planning	2.4
Female education	0.9
Total	$38.0
Two thirds is required in East Asia, and one third in South Asia.	

- International donors can only provide 5% or so of the financial requirements of a cleaner environment. Governments will only be able to provide 20-40% more. More than half will half to come from the private sector.

- We may encourage governments to raise environment-related taxes and prices -- but in a way that is "revenue-neutral". Environment-related taxes can go one of two ways: high revenues due to high pollution, or low revenues due to pollution abatement. Ultimately, we want tax avoidance, low pollution tax revenues, and investments in clean technologies.

We waht to make private investment in the environment-related infrastructure profitable, through:

- privatizing, or "commercializing" many infrastructure sectors;
- making investments in energy, water, public transport, solid waste more viable through higher prices.

Recognizing that most "environmental markets" are government-created, we see our role as convincing governments to go ahead and promote these markets.

DEG

Advisory Service Programme
- THAILAND -

The Advisory Service Programme is a publicly funded scheme to promote business cooperation with companies in developing and newly industrializing countries. Run by the DEG on behalf of the Federal Ministry for Economic Cooperation and Development, it focusses on investment promotion in 8 countries, including 4 ASEAN states.

The main aims of the free advisory services as part of the Thailand Programme are to help find business partners, analyze locations and gather and evaluate country and project-related data. Though rendered by its staff, the advisory services are not tied to any co-financing of the cooperation project by the DEG, but financial support is of course available if required. For further information, please consult our brochures on DEG advisory and financial services.

Your adviser in Germany is Ms. Maria Spölgen at the

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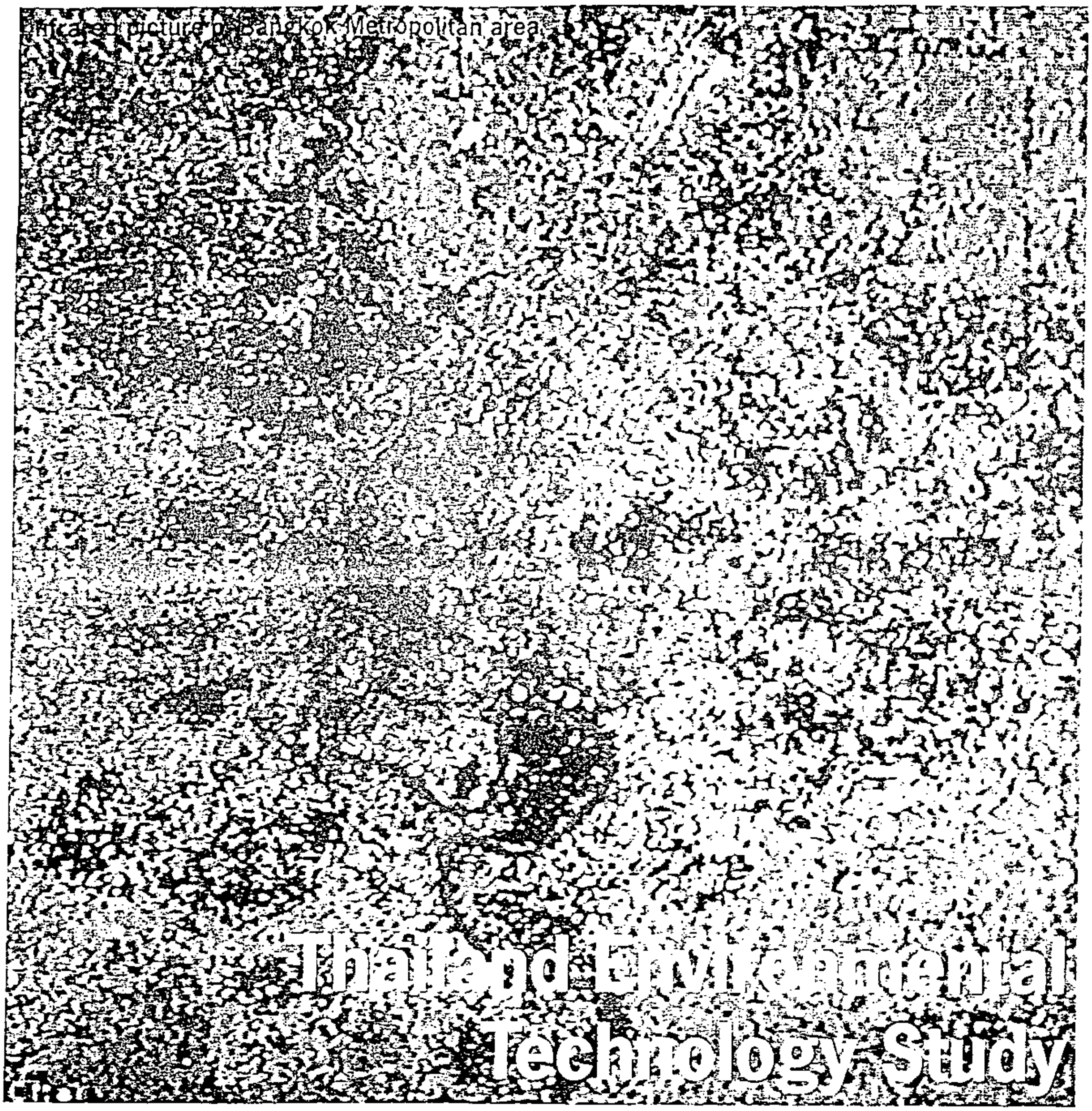
Widdersdorfer Str. 225a
D-50825 Köln (Braunsfeld)

Tel.: 0221-49 86-2 30
Fax: 0221-49 86-1 11

and in Thailand, **Mr. Walter Haskamp** is available at the following address:

Thai-German Investment Promotion Service
Office of Industrial Economics
Ministry of Industry
Narai Building, 4/F
Rama VI Road
Bangkok 10400

Tel.: 00 66-2-2 46 54 84 or 245 39 98, Ext. 116
Fax: 00 66-2-2 46 54 84



Infrared picture of Bangkok Metropolitan area.

Thailand Environmental Technology Study

Deutsche Investitions- und
Entwicklungsgesellschaft mbH

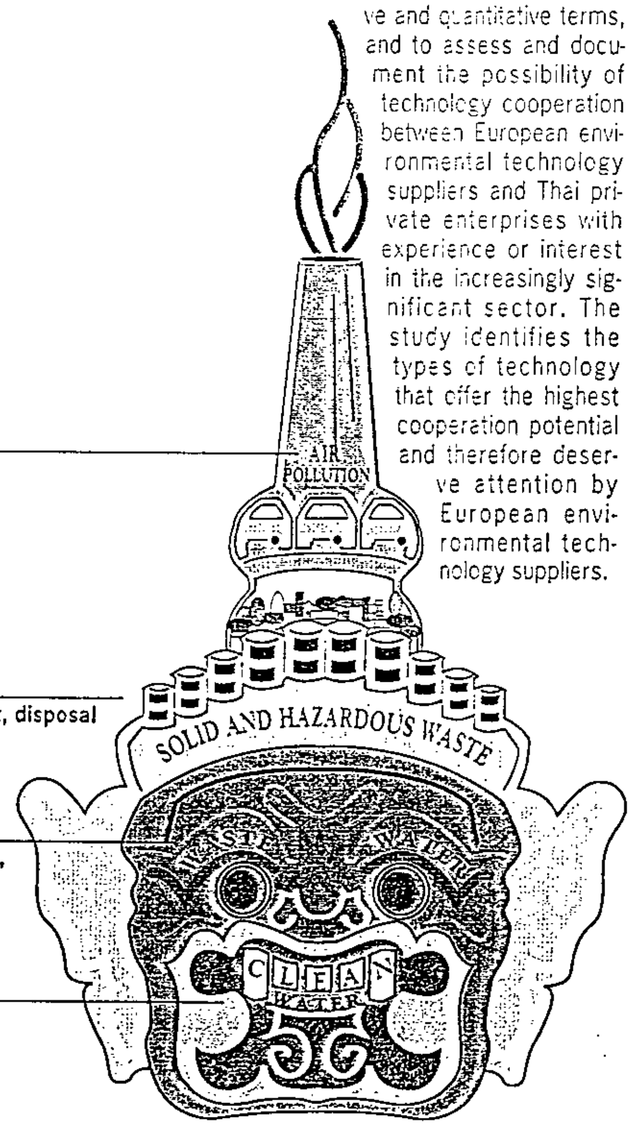
Commission of the
European Communities

A study of the Thai environmental technology market was carried out by GKW in association with Pro-En and Seatec Int. of Thailand and ERL of England. The study was commissioned by DEG, the German Investment and Development Company, and ECIP (European Community Investment Partners).

DEG is the German government owned financing and consultancy institution that promotes private investment and technology transfer between private sector companies in Germany/Europe and in developing and newly industrialized countries.

The aim of the study was to describe the Thai market for environmental technology up to the year 2000, in qualitative and quantitative terms, and to assess and document the possibility of technology cooperation between European environmental technology suppliers and Thai private enterprises with experience or interest in the increasingly significant sector. The study identifies the types of technology that offer the highest cooperation potential and therefore deserve attention by European environmental technology suppliers.

Environmental technology market segmentation



10 %
control equipment

15%
collection, treatment, disposal

35%
collection, treatment, re-use and disposal

40 %
supply, treatment, distribution

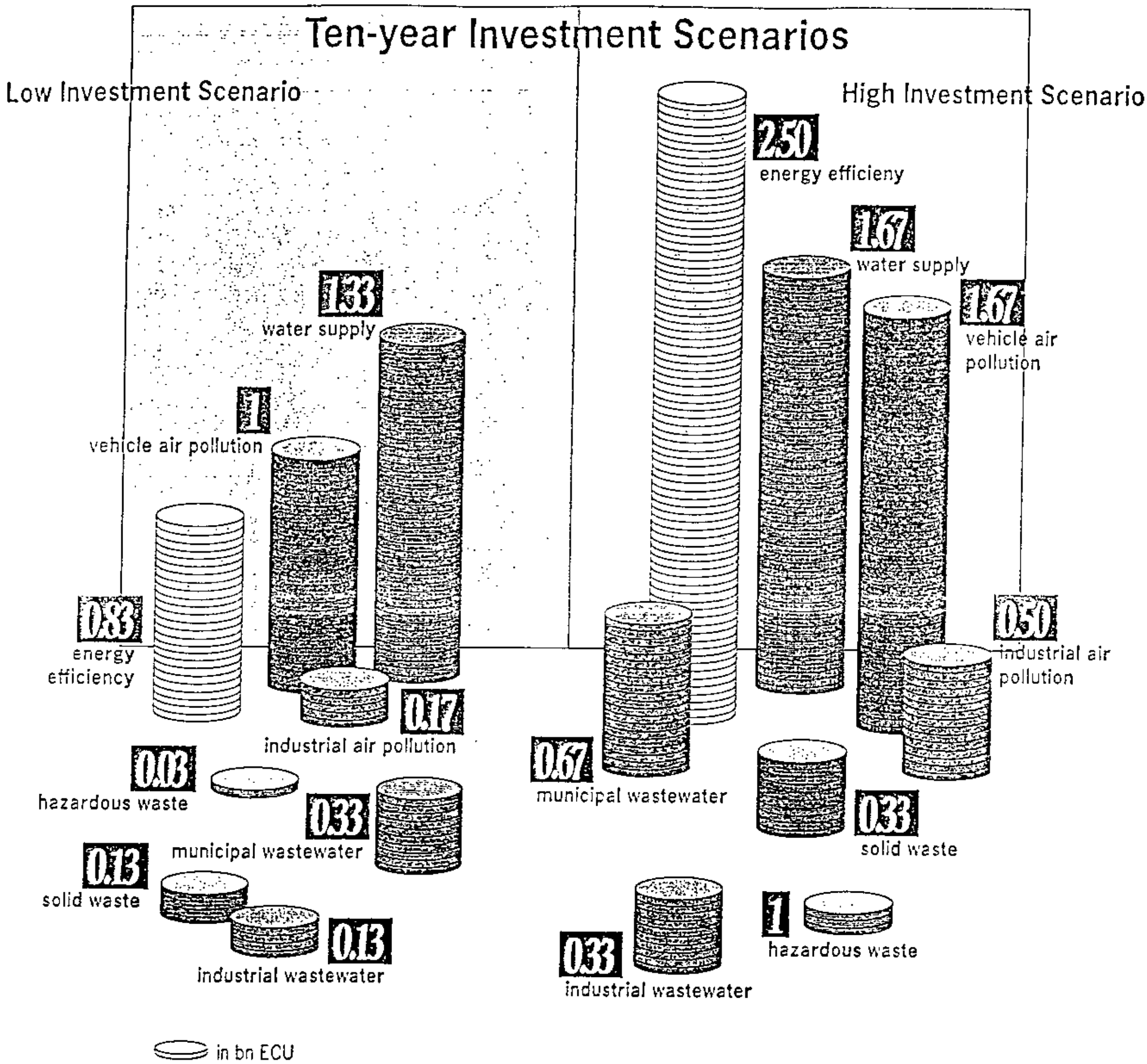
The Study presents an in-depth analysis of five market segments that are significant, together with the technical characteristics of these segments and the major gaps and deficiencies in currently imported and locally produced supply.

Industrialisation in Thailand has brought an unbalanced increase in demand for water and energy, and generates wastes and pollution in excess of its share of GDP.

Pressures that are effecting key sectors of the Thai economy include the following:

- The reliance of Bangkok Metropolitan Region (BMR) on diminishing local water resources with resulting problems that include water shortages for industrial use, land subsidence within the city and flooding of built-up areas during the rainy season.
- The virtual lack of any centralised wastewater collection, treatment and disposal infrastructures, resulting in the complete loss of most river uses of the Chao Phya, its tributaries and channels in BMR.
- The increasingly difficult task of handling and disposing of growing amounts of municipal, industrial and hazardous wastes in an environmentally friendly way.

Key drivers determining the current dynamics of the environmental technology market are the Thai environmental regulatory framework, the increasing public pressure for change and the resulting recent manifestations of political will towards more effective pollution control and management.



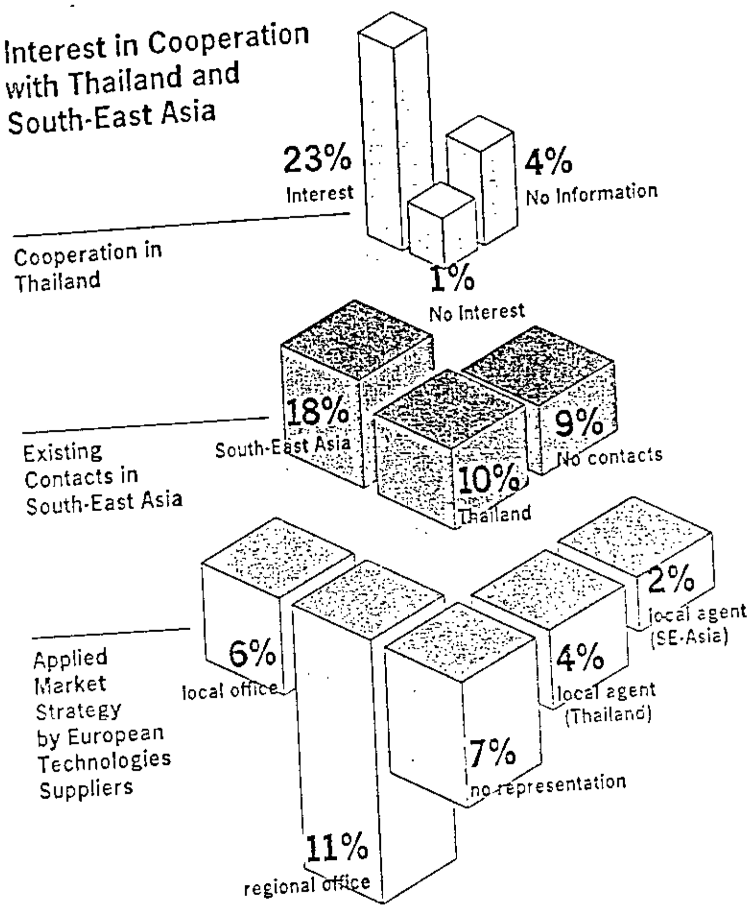
The study concludes by assessing environmental technology opportunities for European suppliers interested in entering into technology cooperation relationships with Thai enterprises.
Obstacles to such cooperation as perceived by European suppliers are cost competitiveness, limited local technical skills for production or operation, and risks of technology capture.

The most promising technologies identified are intermediate, robust and proven technologies, which were successful in Europe at a time when the socio-economic levels of development were comparable to those of Thailand today. These include compact and modular water and wastewater handling plants, simple mobile sludge dewatering equipment such as belt presses, bar and mesh screens, scrapers, aerators, cyclones and dry scrubbers, flow meters and recorders, and analytical measuring and recording instruments for environmental monitoring.

Key success factors for successful technology cooperation in Thailand are the following:

- ●●● Maximized local assembly.
- ●●● High performance components manufactured in Europe to enhance the technical edge.
- ●●● Proven record of operational robustness to avoid costly after-sale service.
- ●●● Possibility of incremental technological upgrading to satisfy emerging demands for more innovation and higher performance.

Interest in Cooperation with Thailand and South-East Asia



In consideration of the fact that Asian business in general and Thai business in particular is based on personal contact and trust, the key to successful technology cooperation is not the technology itself as much as the willingness of European firms to involve local staff in order to:

- Demonstrate commitment to Thailand.
- Establish and accumulate extensive contacts.
- Create a base of local people working for and growing with the firm.

For European investors, Thailand has to be seen not only as market for environmental technology, but also as a place to learn and develop innovative, regionally adapted products capable of sharpening companies' capabilities to do business elsewhere in Thailand.

The Thailand Environmental Technology Study (in English), covering all aspects and results of the investigations briefly described above, is available from DEG against payment of DM 150,-.

Please send us the
Thailand Environmental Technology Study
(Volume 1: Background Study,
Volume 2: Market Study).
Both volumes at the price
of DM 150,-

name: ______________________

address: ______________________

For further information, please contact Maria Spölgen or Daniela Söhngen at the following address:

DEG

Deutsche Investitions- und Entwicklungs-gesellschaft mbH

Belvederestr. 40
50933 Köln, Germany
Tel: 49+221+4986-230 (or -335)
Fax: 49+221+4986-111

As a result, the "polluter pays principle" and the "public right-to-know" are becoming integrated into the regulatory framework. New regulations aim to encourage rather than punish.
Confidence in the regulatory authority has grown in line with the greater transparency and the promise of equity of enforcement, and there is a move towards greater compliance.

Major public sector investment programmes in key areas of environmental concern include the following:

- Bangkok Metropolitan Administration (BMA) wastewater schemes (0.35bn ECU).
- BMA urban solid waste management programme (0.2bn ECU).
- Public Works Department wastewater treatment programme for municipalities outside BMR (0.19bn ECU).
- Industrial Estates Authority of Thailand infrastructure upgrading programme.
- Eastern Seaboard Regional Environmental Management Plan (0.03bn ECU).

The clear water and wastewater sectors account for the major part (40% and 35% respectively) of present demand for environmental technology. Sales and distribution channels privilege suppliers with long-term contacts with a small group of local intermediaries.

Imports from Japan and the US each account for approx. 25% of the present environmental technology supply. The European share of the market volume is 20%, as the share of the locally manufactured supply is 20% (others 10%).

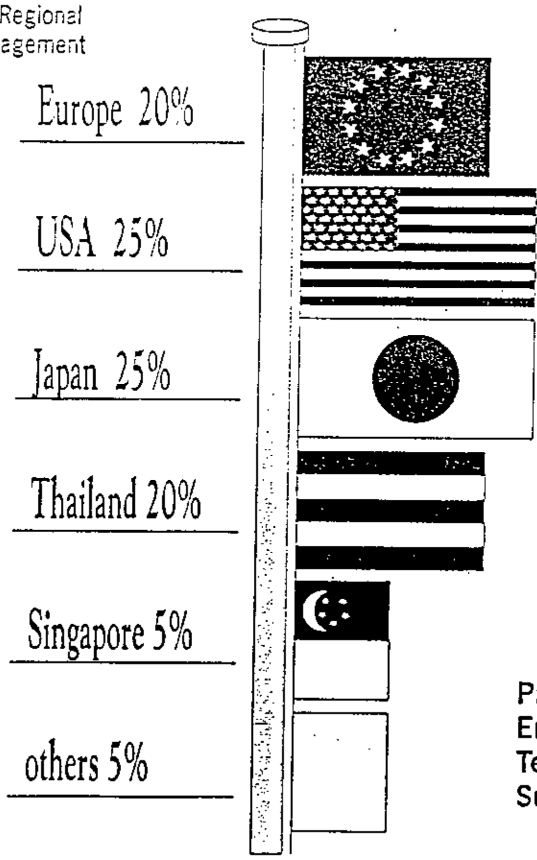
High and low future demand scenarios were prepared as part of the study and were based on estimated future capital investment programmes. Key features and trends in the major market segments over the next 10 years were assessed.

The high growth scenario puts the entire Thai environmental technology market at 8.6bn ECU over the next 10 years; the low growth scenario estimates this market volume at 3.9bn ECU.

Market intermediaries will play an increasingly important role, as will capable local manufacturers of locally developed systems based on foreign design and the selective import of key components.

Cost is likely to decrease in importance as a market driver. Regulatory pressure for improved compliance levels is inducing equipment owners and users to spend more than in the past on better performing end-of-pipe environmental technology with proven track records.

Demand for recycling and material recovery is also rapidly expanding. Opportunities for advanced, high performance clean technologies are expected to emerge at a later stage, when there is sufficient operational end-of-pipe experience to realise the competitive advantage created by energy efficient, cleaner productive technologies, and when the environmental costs of production are fully priced and accepted.



Present Environmental Technology Supply

OPPORTUNITIES IN

Thailand

☆ An insight into the Thai Market ☆

ST JAMES COURT HOTEL , BUCKINGHAM GATE,
LONDON SW1E 6AF

9.30 am – 4.00 pm

WEDNESDAY 16 FEBRUARY 1994

(Registration and coffee at 9.00 am)

Make it your business to attend and find out:–

☆ How to explore business opportunities

☆ Why Thailand should be part of your Export Strategy

☆ Who can assist you in exporting more effectively

Thailand continues to be one of the fastest growing economies in South East Asia with an incredible GDP growth rate averaging 10% over the past 7 years and a projected growth rate of 7·8% for '94. UK exports continue to climb reaching £476·4 million in 1992. DTI has organised this event to introduce exporters to the great potential offered by this rapidly expanding market and centre for regional strategic development, and to help you with your specific export plans.

The morning session of this event will consist of a series of briefings on the market, led by Christian Adams, the British Ambassador for Thailand. After lunch from 12.30 to 2 pm the following export organisations will be available for those who wish to stay to discuss their particular export plans:–

- Technical Help to Exporters
- Bank (Export finance)
- SITPRO
- British International Freight Assoc'
- DTI's Thailand Country Desk Staff
- Prelink Ltd (Export Intelligence)
- H M Customs and Excise
- Association of British Chambers of Commerce
- ECGD (Export Insurance)

What to do next . . . ?

There is a £50 attendance fee per delegate. This includes entry to the seminar and workshop plus a buffet lunch. If you would like to attend then you can pre-register by completing the attached booking form. Only you can develop a successful export operation for your company, but DTI can help.

Booking form

OPPORTUNITIES IN Thailand

STEP 1

Tick appropriate box

(✔)

[ ] **YES!** I would like to come

[ ] **NO** I am unable to attend: please send further details on DTI's Overseas Trade Services.

STEP 2

Remittance for £50·00 to cover total cost enclosed.

Please make cheques payable to DTI and return to Carmen Jones (see below) — CASH CANNOT BE ACCEPTED.

CANCELLATIONS: full refunds will be made on cancellations received in writing before 9 February 1994. No refunds will be given after that date.

STEP 3

Complete delegate's details

NAME	POSITION

Company Name:	
Address:	
	Postcode:
Telephone:	FAX No:
Product/Service:	No. of Employees:
Do you currently export? YES ( ) NO ( )	

THREE EASY WAYS TO REGISTER

By telephone: call DTI-SE on 071-215 5489

By post: Mail to Carmen Jones, Bay 567, Kingsgate House, 66–74 Victoria Street, London SW1E 6SW

By FAX: complete Booking Form; our FAX number is 071-215 4701

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BRITISH DESIGN AND TECHNOLOGY WEEK

THAILAND

17-21 OCTOBER 1994

ENVIRONMENTAL TECHNOLOGY SEMINAR 17-18 OCTOBER 1994

A major seminar will be held in Bangkok, on 17-18 October to promote British expertise in Environmental Technology.

The seminar, organised by British Water, with support from the Department of Trade and Industry and the British Embassy in Bangkok, will be one of the highlights of a British Design and Technology Week.

The seminar will consist of a series of presentations and workshops with an associated exhibition promoting UK excellence in this field.

One day will be devoted to the Water Industry and Waste Water Treatment and another to wider environmental technologies.

British companies in these fields will have the opportunity to give presentations, run workshops and participate in the mini exhibition.

A specially targeted audience of top Thai government officials and senior Thai businessmen will be invited to attend this event, to be staged at a leading hotel in Bangkok.

We believe that this is an opportunity not to be missed by British companies interested in the Thai environmental technology market.

Rapid industrialisation in Thailand and a growing awareness of environmental issues, is producing tremendous opportunities for British Technology in this area.

We are looking for British companies to participate in this event, which aims to put on display the best of British technology in the water and environmental technology industries.

We hope that a senior British VIP will open the event.

If you are interested in attending this prestigious event in Thailand, or would like to find out how you could qualify for DTI financial assistance avaiable to participants, please fill in the attached pro-forma and return it to: Mr Tony Nockles, British Water, 1 Queen Anne's Gate, London SW1H 9BT <u>OR</u> by fax on 071 957 4565.

THAILAND

ENVIRONMENTAL TECHNOLOGY SEMINAR
17-18 OCTOBER 1994

NAME
....

POSITION
....

COMPANY NAME
....

ADDRESS
....

.............................POST CODE.........

TELEPHONE FAX No

....

PRODUCT/SERVICE
....

No OF EMPLOYEES
....

Return to:

Mr Tony Nockles
British Water
1 Queen Anne's Gate
London SW1H 9BT
Tel: 071 957 4554
Fax: 071 957 4565

DEG

Advisory Service Programme

- INDIA -

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The main aims of the free advisory services as part of the India Programme are to help find business partners, analyze locations and gather and evaluate country and project-related data. Though rendered by its staff, the advisory services are not tied to any co-financing of the cooperation project by the DEG, but financial support is of course available if required. For further information please consult our brochures on DEG advisory and financial services.

Your advisers in Germany are Ms. Ricarda Horst and Mr. Andreas Ziesmann at the

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Maarweg-Center
Widdersdorfer Str. 225a
D-50825 Köln (Braunsfeld)

Tel.: (0221) 49 86-378 (Ms. Horst); -562 (Mr. Ziesmann)
Fax: (0221) 49 86-111

and in India, two advisers in **New Delhi** and **Bombay** are available at the following address:

Indo-German Investment Promotion Service (IGIPS)
Mr. Klaus Benz
2, Nyaya Marg
Chanakyapuri, New Delhi 110 021

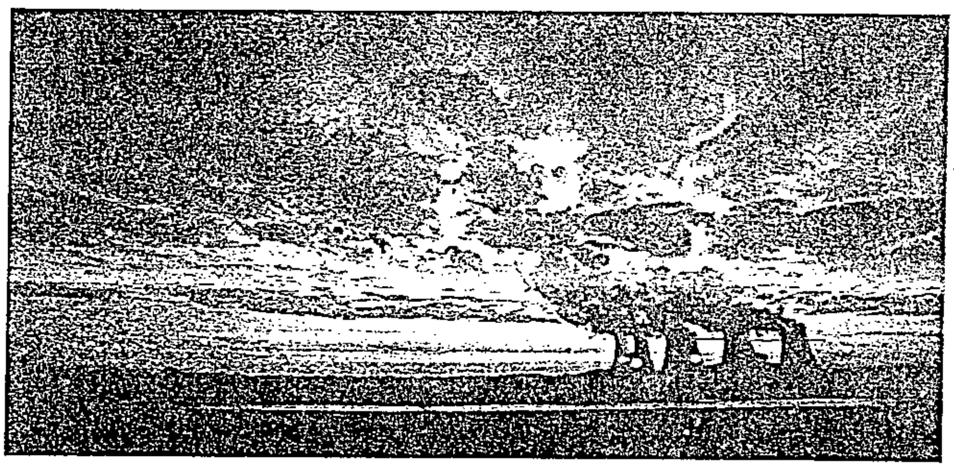
Tel.: (0091 11) 3 01 69 14
Fax: (0091 11) 3 01 69 21

Indo-German Investment Promotion Service (IGIPS)
Mr. Dennis D'Silva
318, Maker Chambers V
Nariman Point, Bombay 400 021

Tel.: (0091 22) 2 04 23 52
Fax: (0091 22) 2 04 62 08

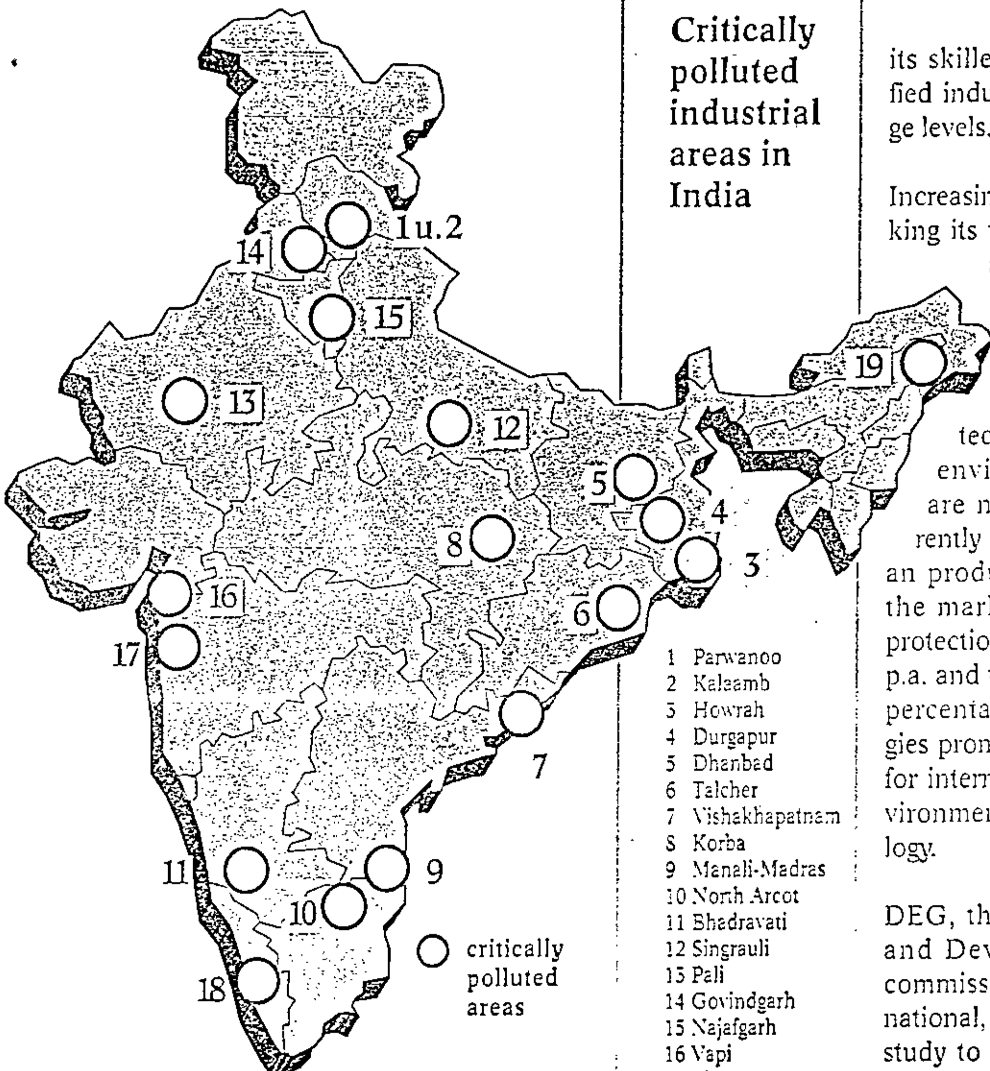
DEG - Deutsche Investitions- und
Entwicklungsgesellschaft mbH

India



Business Opportunities in the
Field of Environmental Technologies

Critically polluted industrial areas in India



1 Parwanoo
2 Kalaamb
3 Howrah
4 Durgapur
5 Dhanbad
6 Talcher
7 Vishakhapatnam
8 Korba
9 Manali-Madras
10 North Arcot
11 Bhadravati
12 Singrauli
13 Pali
14 Govindgarh
15 Najafgarh
16 Vapi
17 Chempur
18 Greater Cochin
19 Digboi

India is among the world's leading industrial nations with a domestic market of 895 Mill. people and a GDP of 237 billion US $. The changes initiated by the new industrial policy in 1991 have helped in opening up the Indian subcontinent politically and economically. As a business location, India offers numerous advantages: a wealth in raw materials, the size of its skilled workforce, a diversified industrial base and low wage levels.

Increasing industrialization is taking its toll, polluted water and air are among the most important health hazards in India. To secure further (sustainable) development, technologies for industrial environmental protection are needed, which are currently not available from Indian producers. The turnover of the market for environmental protection is increasing at 30 % p.a. and the need to import large percentages of these technologies promises vast opportunities for international suppliers of environmental protection technology.

DEG, the German Investment and Development Company, commissioned Lahmeyer International, Frankfurt, to conduct a study to identify potential fields for collaboration between Indian and European private companies. The aim of the study was to identify technology needs in priority industries in India and to characterize "adapted technologies". The market potential for these "adapted technologies" was then assessed and potential Indian and European collaborators were identified.

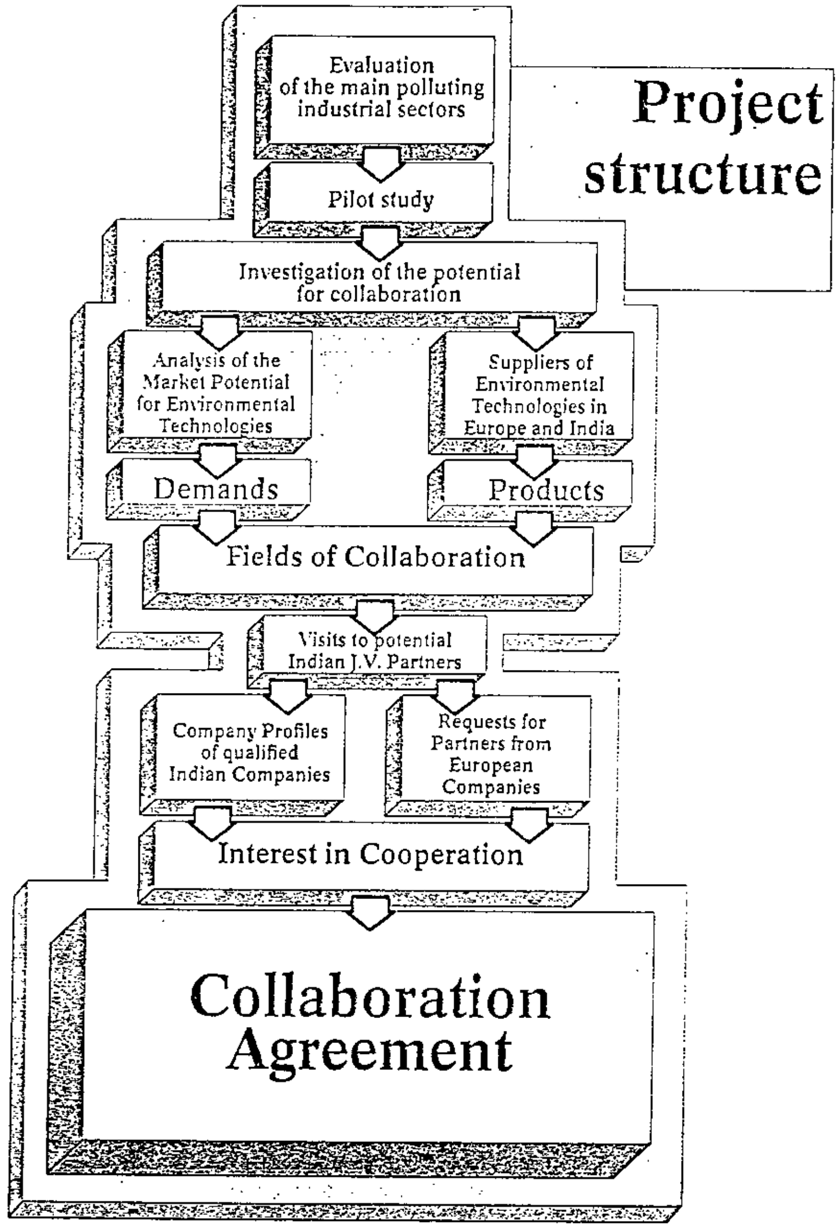
Thirteen priority industries have been investigated for their potential for Indo-European collaboration in industrial environmental protection. Three industrial sectors have been analyzed in detail with respect to environmental pol-

Example: Flotation
Out of the fourteen fields of collaboration, flotation is here chosen to demonstrate the potential for cooperation between Indian and European companies.

Demand for flotation technologies will grow sharply in the future. To date, this method is primarily used in the pulp & paper industry and the food industry. There is also a growing market in the dairy, sugar, textile processing, coal beneficati-on, tanneries, and petrochemical industries. Since the government is demanding efficient treatment of waste waters containing oil, there will also be increased demand for flotation in the mineral oil and refinery industry.

The primary motivation to apply flotation is its potential for the recovery of resources (e.g. pulp and paper industry, coal industry) and water.

The adaptations of the technology to India's requirements should especially include the following: high efficiency, low power consumption and short residence time. The capacities needed would vary from extremely small units (2 m^3/h) to large units for the petrochemical and oil exploration industry (up to 2,500 m^3/h). Systems operating at low air pressure are preferred.



Several international collaboration projects have already been launched in India. It is expected that the overall market will further increase from about 50 units p.a. to date to about 100 units p.a. in the next ten years. The increase in terms of investment will be considerably higher because the average size of plants will also increase due to higher capacities required in the petrochemical and oil exploration industries.

Political and legal framework
A large part of the market is determined through ministries and authorities as market drivers, who decide on rules and regulations and especially the enforcement thereof. The Indian environment protection laws are to a large extent based on international standards.

Plants and equipment for the protection of the environment and the conservation of resources enjoy preferential treatment with respect to customs duties, taxes and depreciation. Indian financial institutions give subsidized credit for investments in the fields of environmental protection, safety technology and modernization.

India offers many opportunities in the sector of industrial environmental protection. Joint ventures, technology transfer and the granting of licences should be properly prepared. DEG provides experience and expertise in India through its representative, the Indo-German Investment Promotion Service (IGIPS) with offices in Bombay and New Dehli. DEG advisory services are free of charge.

The study bears the title "Investigation of the Potential for German and European Collaboration in the Field of Industrial Environmental Protection in India" and is available in English or German language from DEG (DM 300,-).

Please send us the
"Investigation of the Potential for German and European Collaboration in the Field of Industrial Environmental Protection in India", available in English or German language from DEG (DM 300,-).

Name: ______________________________

Address: ______________________________

☐ **German issue**

☐ **English issue**

For further information, please contact Ms. Ricarda Horst or Mr. Andreas Ziesmann at the following address:

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Postfach 45 03 40
D - 50878 Köln, Germany

Telephone:
(+49-2 21) 4986 - 3 78
or - 5 62

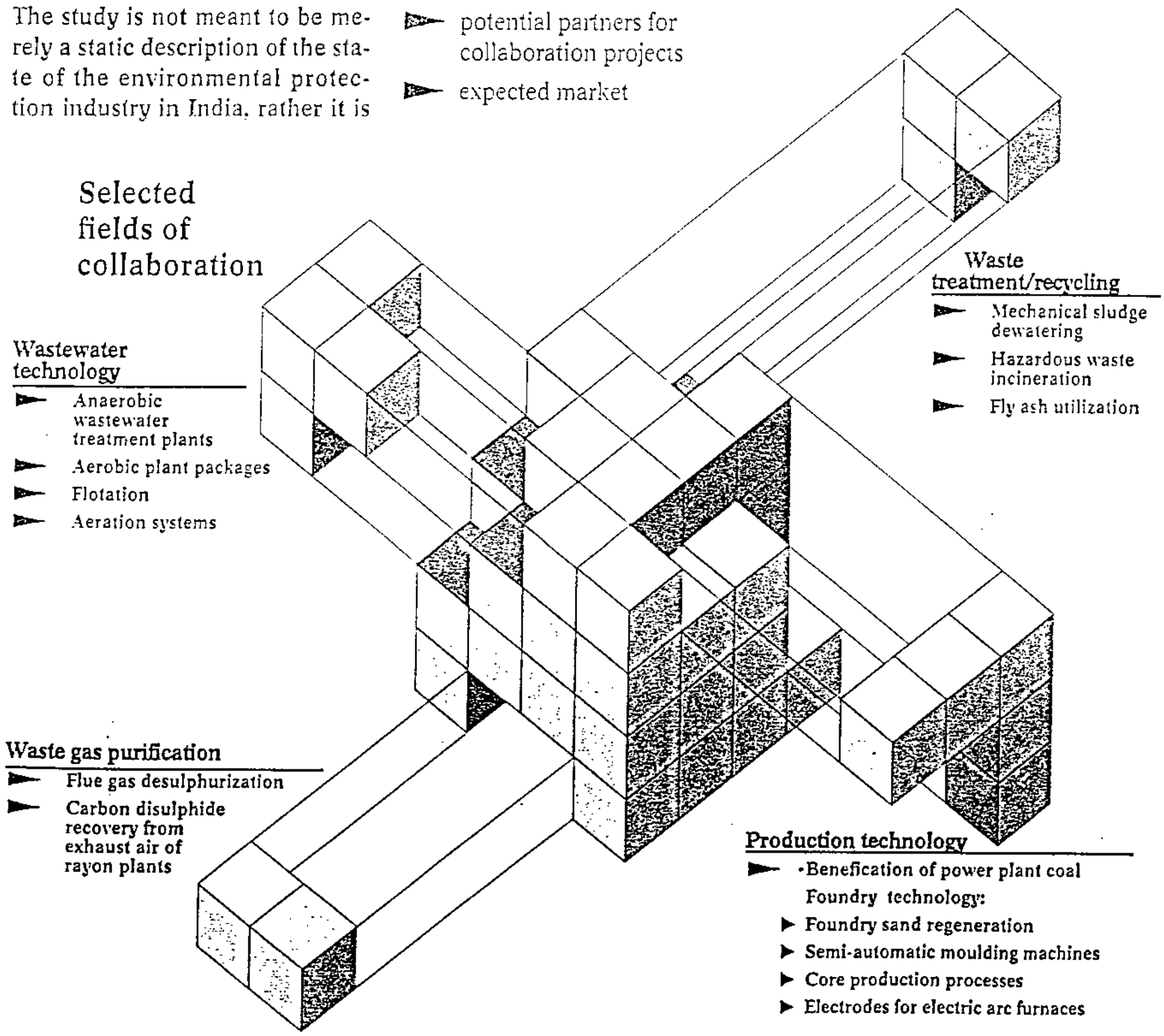
Fax:
(+49-2 21) 49 86 - 1 11

lution: thermal power plants, foundries, and the pesticide industry. Key issues in the Indian environmental protection sector, common to many different industries, are wastewater treatment, air pollution control, hazardous waste management, process integrated pollution control ("clean production technologies") and the conservation of energy and resources. In total, fourteen fields of collaboration have been identified and described in the study.

The study is not meant to be merely a static description of the state of the environmental protection industry in India, rather it is directed towards European companies who want to assess their chances to cooperate with Indian companies. To this end, the study contains very specific information on the following:

- existing and planned plants
- comparison of environmental and technical standards
- characterization of the adapted technology
- specific frame conditions
- potential partners for collaboration projects
- expected market

In December '93 and Febuary '94 DEG will conduct company visits in India covering existing manufacturers of environmental technologies and companies willing to diversify into this sector. As a result, detailed company profiles also assessing the technical capabilities will be drawn up and are then available to interested European companies.



DEG · Deutsche Investitions- und Entwicklungsgesellschaft mbH

Reprint from DEG's Annual Report 1992

1992 – Focuses of the Business Year

DEG – An Overview

Project Finance

		1992	1991
New business	Commitments (number)	48	55
	Commitments (millions of DM)	325	315
Total business since 1962 (accumulated)	Enterprises (number)	562	545
	Countries (number)	92	89
	Commitments (millions of DM)	3,276	2.951
	Overall investments (billions of DM)	31.8	30.0
Project portfolio (net commitments at end of year)	Enterprises (number)	306	318
	Countries (number)	75	72
	Equity (millions of DM)	535	584
	Loans (millions of DM)	1,503	1.277
	Guarantees (millions of DM)	14	16
	Total net commitments (millions of DM)	2,052	1,877
	Overall investments (billions of DM)	24.6	25.5

Consultancy Services

	1992	1991
Settled accounts (number)	49	54
Turnover (millions of DM)	14.1	10.4

Annual Statements of Accounts

	1992	1991
Balance sheet total (millions of DM)	1,837	1,720
Subscribed capital (millions of DM)	1,000	1,000
of which: paid-up (millions of DM)	834	774
Total income (millions of DM)	185	130
of which: from projects / services (millions of DM)	164	116
Total expenses (millions of DM)	176	127
of which:		
current expenses (millions of DM)	79	71
provisions for risks (millions of DM)	97	56
Net profit for the year / Balance sheet profit (millions of DM)	9	3

Commitment = a financial contribution firmly committed by DEG to a project enterprise or to its partners
Overall investment = the entire financial requirements of the projects (in the case of development banks only the DEG share)

DEG – The Company

DEG is a German financing and consultancy institution for promoting the private sector in its partner countries. The latter include the developing countries of Africa, Asia, Latin America and Southern Europe. By broadening the definition of its business purpose DEG has acquired further partner countries, the reforming countries of Central and Eastern Europe as well as the newly independent countries which have replaced the former Soviet Union.

DEG provides support to companies in the countries indicated, particularly their partnership with German and other European companies. In this context it is a general consultant for private investments, joint ventures and other forms of long-term intercompany cooperation.

DEG is one of the few internationally active financial institutions offering a full package containing investment and cooperation consultancy, project financing in the form of long-term loans and venture capital, as well as project support.

DEG has a qualified staff of more than 260, offering DEG partners the benefit of experience accumulated in connection with having financed more than 560 projects in over 90 partner countries.

DEG's activities are based on private-enterprise principles. Its projects are profitable, environmentally acceptable and make sense in development policy terms.

DEG is prepared to take on commitments in any area of the private sector.

1992 – Focuses of the Business Year

Rainer von Othegraven
Chairman of DEG's
Board of Management

The result of business year 1992 was positive. Once again DEG expanded its volume of business considerably. The volume of new financial commitments amounted to around DM 325 million, the third-largest figure for new business since the Company was founded. The strong growth in the volume of business is reflected by the fact that the commitments made over the past four years, involving more than DM 300 million in each case, account for about two-thirds of the current volume of commitments. In other words, only about a third of the present project-financing commitments have been in the portfolio for five years or more.

The large volume of new commitments was characterized by a strong increase in financing assistance for development in the financial sector. This included in particular:

- an expansion of the rediscount line for an interregionally active bank which provides loans to export-orientated companies in Latin America and the Caribbean,
- the provision of long-term funding for banks in Indonesia where the government is withdrawing from the banking sector in connection with deregulation measures,
- support for development of the tourism sector through the cofinancing of a special financial institution in Morocco,
- use of a credit line by an Indian development bank for the refinancing of German-Indian joint ventures in accordance with a general agreement concluded in 1988.

Special importance will continue to be attached to the promotion of development in the capital market and to the expansion of the financial sector in our partner countries. However, further growth in this sector will require taking into account the need to balance our portfolio structure by sectors.

Environmental protection projects constitute a new focus of DEG business. Environmental acceptability is no longer just a parameter for project business. For the first time projects are being implemented with a specific view to environmental protection:

□ A Brazilian corporate group in the chemicals industry received long-term funding from DEG earmarked specifically for environmental protection investments (modernization of waste-water treatment, construction of a residue incineration plant). The investments are being made in accordance with the conditions imposed by the German partner company. This is intended to make possible compliance with German environmental standards.

□ In the context of the Integrated Advisory Service for Private Business Promotion in Partner Countries (IAS) we examined the potential of Indian and Thai companies for cooperation with companies from Germany and other EC countries in the area of industrial environmental protection.

The volume of new business with regard to loans increased by 4% compared with the previous year, whereas the volume of newly acquired equity stakes declined by 6%. After adjustment for loan repayments and sales of equity stakes, lending accounted for just under three-fourths of the overall portfolio at the end of 1992. Equity investments accounted for over a quarter of the total, a fairly high percentage of the overall portfolio in comparison with other institutions of this kind. A solid and promising investment portfolio will continue to be indispensable for strengthening the Company's earning power.

Asia accounted for the largest share of new business in the report year. Viet Nam was added as a new partner country. DEG commitments in Samoa and Singapore ran out.

New business in Latin America and the Caribbean continued at a relatively high level, but declined somewhat in comparison with previous years. Commercial banks have reacted positively to the economic recovery of this region and strengthened their commitments in these long-neglected markets. DEG acquired a new partner country in this region, Antigua and Barbuda.

The new commitments for projects in Africa showed a growth of 26% over the previous year, a very positive trend, although no basic changes have emerged in the difficult situation this continent is facing. A mining project in Sierra Leone resulted in an addition to the list of partner countries. Foreign investments in the processing industry sector continue to be low.

Since mid-1992, DEG has been active in the Republic of South Africa in an advisory capacity, i.e. to the extent that preparations are being made for business investments that will be of benefit primarily to the black population. Financial commitments are not yet possible.

DEG's commitment in Southwestern Europe is gradually being phased out as Spanish and Portuguese membership in the European Community takes effect on the basis of transition schedules.

In terms of volume, financing business with German partners was nearly as large as with foreign partners (not counting local projects). Companies from the EC countries dominated among the foreign partner companies.

Cooperation at the EC level has assumed a new dimension now that the European single market has been completed. DEG has added to its range of financing services an EC facility which can be made use of by companies from European Community countries for projects in developing countries. As of 1993 it will be able to offer a further EC facility for projects in the reforming countries of Eastern Europe.

In October 1992, DEG established a liaison office in Brussels together with the Commonwealth Development Corporation (CDC), based in London, and the Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden (FMO), based in The Hague. The *EDFI – European Development Finance Institutions, Brussels Office,* is responsible for coordinating information exchange between the Commission of the European Community and the national European development financing institutions. The Compañía Española de Financiación del Desarrollo S.A. (Cofides), based in Madrid, the Société Belge d'Investissement International S.A. (SBI), based in Brussels, as well as the Industrialiseringsfonden for Udviklingslandene (IFU), based in Copenhagen, will become partners in 1993.

DEG's commercial advisory services were expanded. Close cooperation with the private consulting sector has proven to be valuable in connection with carrying out consulting contracts.

During the report year advisory activities were initiated in the reforming countries of Central and Eastern Europe as well as in the newly independent countries of the former Soviet Union. At the same time, consulting activities were intensified in support of medium-sized German companies with foreign orientations, particularly in the new German states.

The operating result before provision for risks improved as a result of large increases in recurrent and non-recurrent income from equity investments. Provision for risk was increased as a consequence of noticeably worsened country risks in the course of 1992 and the beginning of

1993. As in the two previous years, a balance-sheet profit was shown after provision for risk.

Parliamentary approval of the 1993 federal budget created the prerequisites for increasing the Company's capital by DM 200 million to a total of DM 1,200 million. At the same time, the Company's business purpose was broadened with a view to DEG being able to initiate financing activities in the countries of Central and Eastern Europe as well as in the newly independent countries of the former Soviet Union.

DEG was 30 years old on September 14, 1992. We took the anniversary as an occasion to examine the development-policy effects of our financing and consulting activities in a broadly based study. The results were published in the report *"Development through Private Industry – The Development-Policy Effects of the DEG"* in October 1992. The report documents in overview fashion the fact that DEG's promotion of the private sector in developing countries has had strong positive effects, even though general conditions in the partner countries often leave much to be desired. These effects include promotion of local business, improvement of the employment and income situation, an improved foreign-exchange situation, as well as training, know-how, technology transfer, diversification and decentralization effects. At the same time, it is shown that the promotion of private companies is also possible with a non-subsidizing, i.e. market-appropriate approach, such as employed by DEG.

In a symposium entitled *"Social Market Economy – Promotion of the Private Sector in the Third World"*, held in Bonn on the occasion of DEG's thirtieth anniversary on October 29, 1992, a group of high-ranking experts discussed before representatives of the government, industry and administration sectors the basic general conditions needed to establish a viable social market economy system and its usefulness as a model for the developing countries as well as for the reforming countries of Eastern Europe. The positive response to this symposium confirmed our intention to hold similar public discussions on further issues of key interest taken from DEG's field of business.

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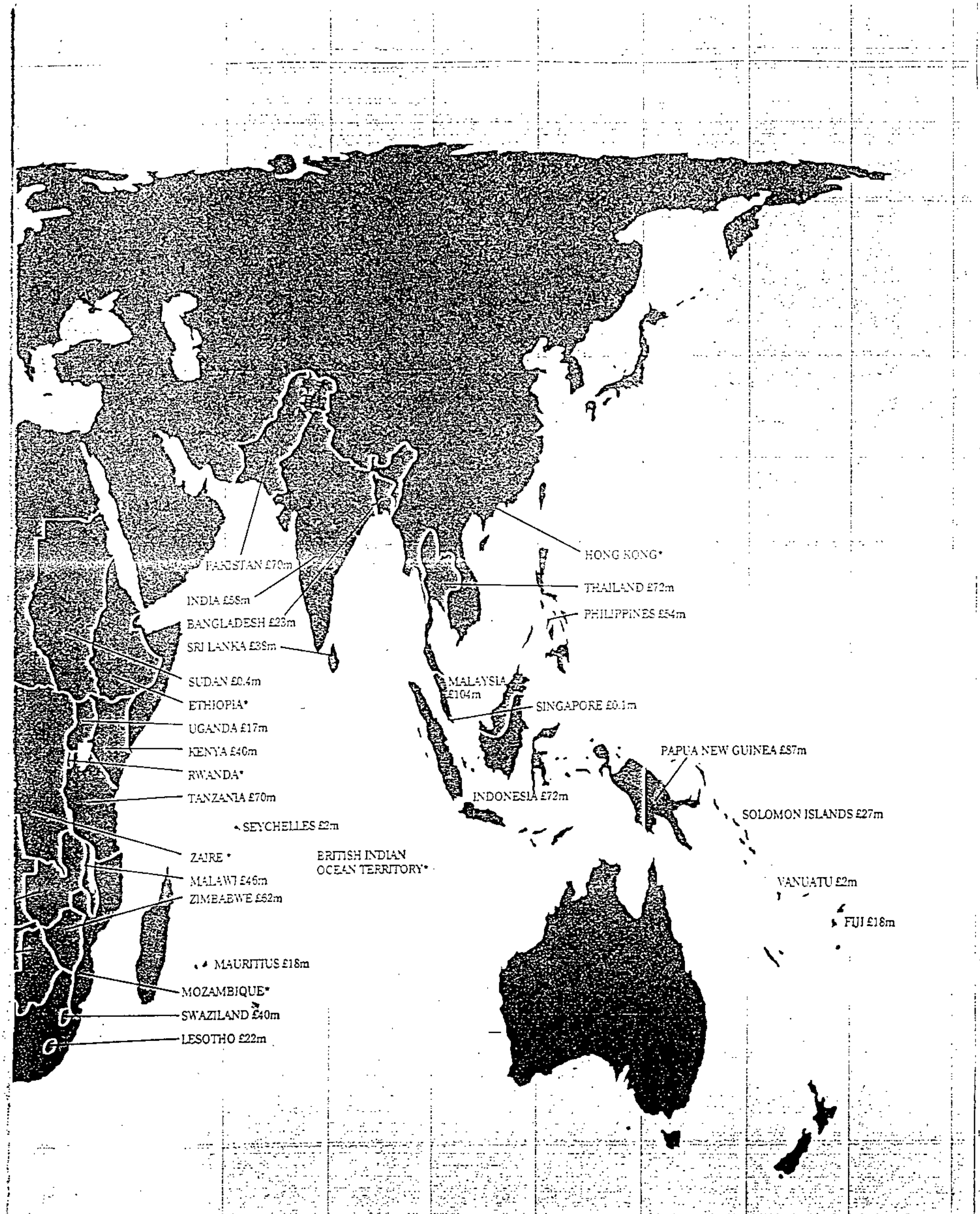

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* *Countries in which CDC may operate but has no current investments*

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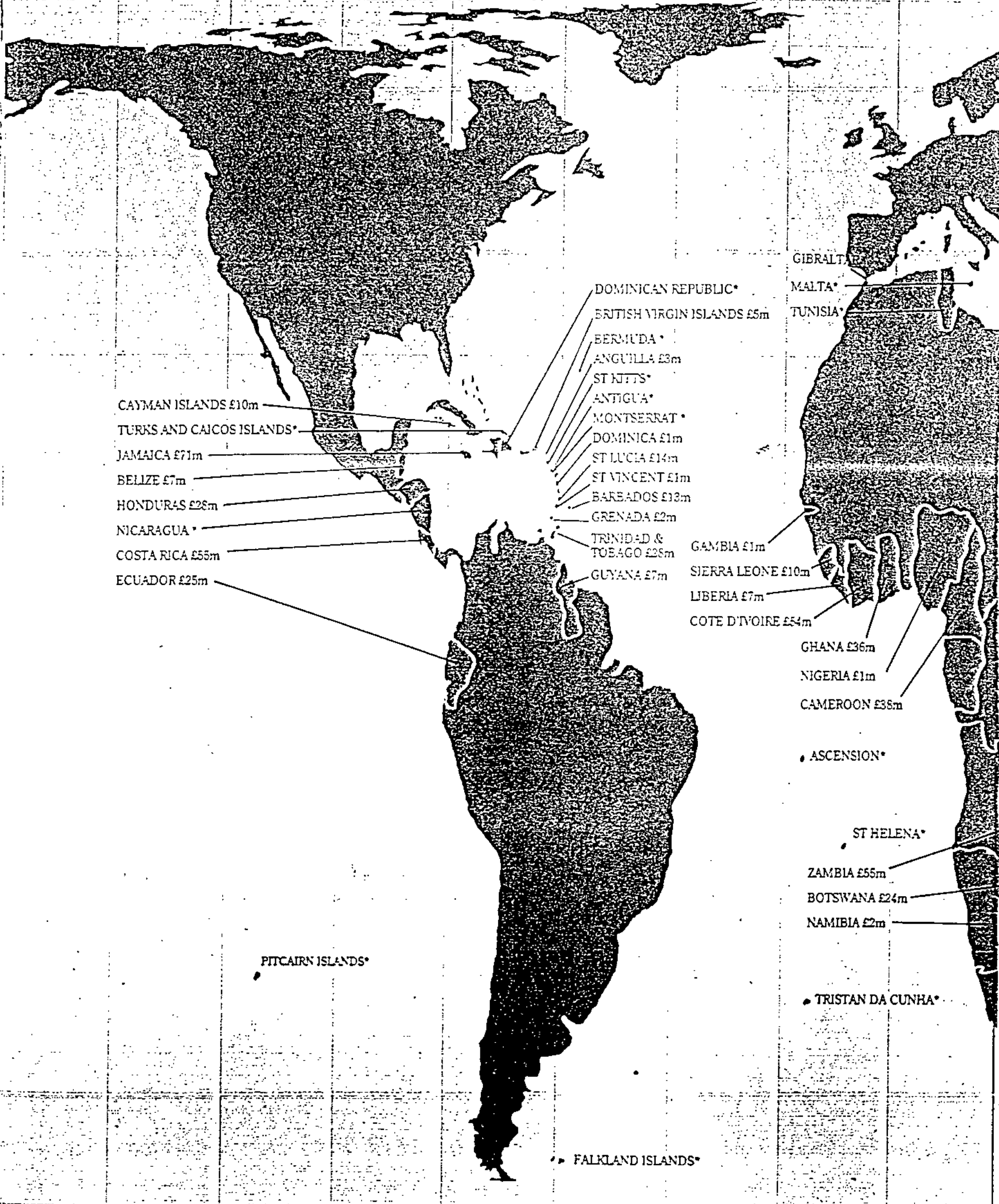

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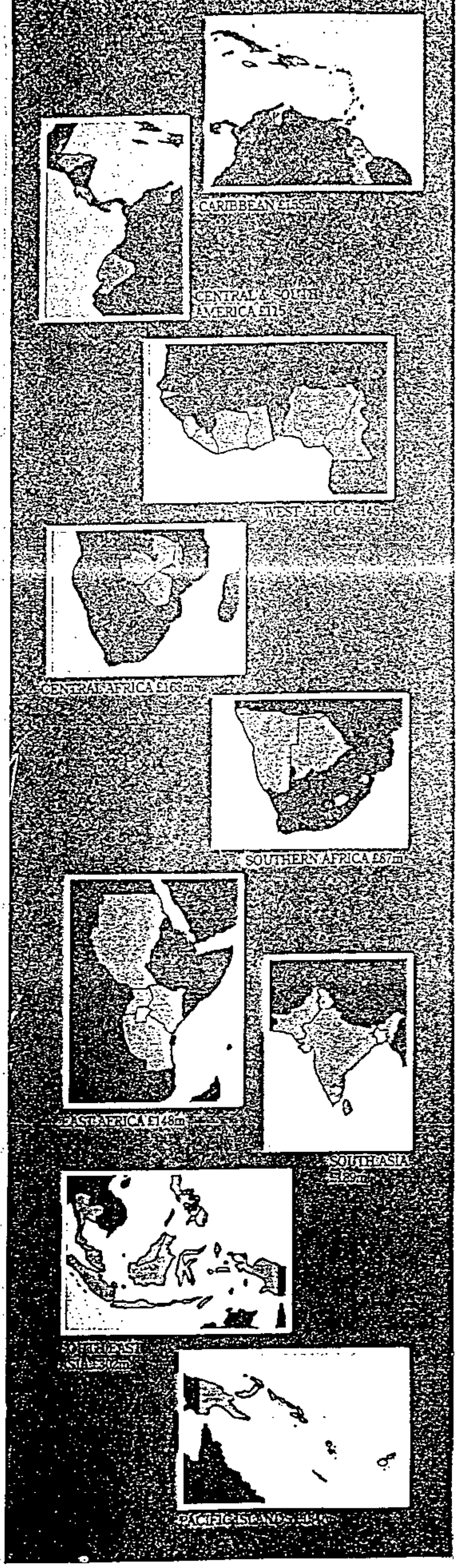
Britain Investing in Development

REGIONAL PORTFOLIO



SECTOR PORTFOLIO

CARIBBEAN

ANGUILLA *1 - investment*

POWER	2.0

BARBADOS *3 - investments*

HOTELS	2.3
FINANCIAL INTERMEDIARIES	0.8
POWER	5.4

BRITISH VIRGIN ISLANDS *1 - investment*

POWER	4.6

CAYMAN ISLANDS *1 - investment*

POWER	10.3

DOMINICA *3 - investments*

RENEWABLE NATURAL RESOURCES	0.1
POWER	0.5
HOUSING FINANCE	0.3

GRENADA *2 - investments*

HOTELS & TOURISM	1.9
POWER	*0.0

GUYANA *3 - investments*

MINERALS	3.6
RENEWABLE NATURAL RESOURCES	3.6

JAMAICA *18 - investments*

HOTELS & TOURISM	4.6
INDUSTRY	1.1
FINANCIAL INTERMEDIARIES	4.3
RENEWABLE NATURAL RESOURCES	25.7
TELECOMMUNICATIONS	15.1
HOUSING FINANCE	20.5
TRANSPORT	0.1

ST LUCIA *3 - investments*

RENEWABLE NATURAL RESOURCES	1.0
POWER	12.1
HOUSING FINANCE	1.4

ST VINCENT *3 - investments*

INDUSTRY	0.2
POWER	0.2
HOUSING FINANCE	0.1

TRINIDAD & TOBAGO *2 - investments*

FINANCIAL INTERMEDIARIES	5.4
MINERALS	22.5

CENTRAL & SOUTH AMERICA

BELIZE *5 - investments*

HOTELS & TOURISM	1.5
RENEWABLE NATURAL RESOURCES	3.3
POWER	0.8
TRANSPORT	0.7

COSTA RICA *14 - investments*

HOTELS	4.6
INDUSTRY	0.8
FINANCIAL INTERMEDIARIES	5.0
RENEWABLE NATURAL RESOURCES	23.8
POWER	5.8
WATER	7.4
HOUSING FINANCE	0.2

ECUADOR *4 - investments*

RENEWABLE NATURAL RESOURCES	5.2
WATER	4.7
TELECOMMUNICATIONS	15.0

HONDURAS *4 - investments*

INDUSTRY	7.6
POWER	11.5
WATER	5.2

WEST AFRICA

CAMEROON *5 - investments*

INDUSTRY	3.0
RENEWABLE NATURAL RESOURCES	28.2
WATER	6.8

GAMBIA *1 - investment*

RENEWABLE NATURAL RESOURCES	1.1

GHANA *14 - investments*

HOTELS & TOURISM	2.1
INDUSTRY	1.5
FINANCIAL INTERMEDIARIES	3.5
MINERALS	2.9
RENEWABLE NATURAL RESOURCES	3.4
POWER	21.5
TELECOMMUNICATIONS	1.4

COTE D'IVOIRE *8 - investments*

RENEWABLE NATURAL RESOURCES	54.5

LIBERIA *5 - investments*

FINANCIAL INTERMEDIARIES	0.2
RENEWABLE NATURAL RESOURCES	5.9
WATER	0.9

NIGERIA *3 - investments*

FINANCIAL INTERMEDIARIES	*0.0
RENEWABLE NATURAL RESOURCES	1.3

SIERRA LEONE *3 - investments*

FINANCIAL INTERMEDIARIES	*0.0
MINERALS	8.6
WATER	1.5

CENTRAL AFRICA

MALAWI *16 - investments*

HOTELS & TOURISM	1.0
INDUSTRY	0.5
FINANCIAL INTERMEDIARIES	1.1
RENEWABLE NATURAL RESOURCES	37.7
POWER	2.8
WATER	1.2
HOUSING FINANCE	0.7
TRANSPORT	1.5

ZAMBIA *15 - investments*

HOTELS & TOURISM	2.5
INDUSTRY	12.2
MINERALS	7.5
RENEWABLE NATURAL RESOURCES	15.9
POWER	5.5

ZIMBABWE *10 - investments*

INDUSTRY	6.2
FINANCIAL INTERMEDIARIES	14.2
RENEWABLE NATURAL RESOURCES	18.9
POWER	18.3
HOUSING FINANCE	6.0

SOUTHERN AFRICA

BOTSWANA *8 - investments*

HOTELS & TOURISM	2.4
FINANCIAL INTERMEDIARIES	0.7
RENEWABLE NATURAL RESOURCES	2.1
POWER	6.5
WATER	6.2
TELECOMMUNICATIONS	4.9
HOUSING FINANCE	1.0

LESOTHO *4 - investments*

INDUSTRY	0.2
FINANCIAL INTERMEDIARIES	*0.0
WATER	20.7
HOUSING FINANCE	0.6

SWAZILAND *14 - investments*

INDUSTRY	6.4
FINANCIAL INTERMEDIARIES	1.5
RENEWABLE NATURAL RESOURCES	29.1
POWER	3.2

NAMIBIA *1 - investment*

RENEWABLE NATURAL RESOURCES	1.8

EAST AFRICA

KENYA *20 - investments*

HOTELS & TOURISM	1.4
INDUSTRY	2.2
FINANCIAL INTERMEDIARIES	2.1
RENEWABLE NATURAL RESOURCES	17.5
POWER	4.8
WATER	*0.0
HOUSING FINANCE	12.1

MAURITIUS *7 - investments*

HOTELS & TOURISM	4.8
INDUSTRY	11.8
FINANCIAL INTERMEDIARIES	*0.0
RENEWABLE NATURAL RESOURCES	6.9
TELECOMMUNICATIONS	0.5

SEYCHELLES *2 - investments*

HOTELS & TOURISM	1.5
POWER	0.5

SUDAN *1 - investment*

FINANCIAL INTERMEDIARIES	0.4

TANZANIA *10 - investments*

INDUSTRY	11.4
FINANCIAL INTERMEDIARIES	1.2
RENEWABLE NATURAL RESOURCES	45.9
POWER	6.5
TRANSPORT	0.8

UGANDA *5 - investments*

FINANCIAL INTERMEDIARIES	2.0
RENEWABLE NATURAL RESOURCES	5.7
POWER	5.6

SOUTH ASIA

BANGLADESH *5 - investments*

INDUSTRY	20.4
FINANCIAL INTERMEDIARIES	2.6

INDIA *17 - investments*

INDUSTRY	24.6
FINANCIAL INTERMEDIARIES	33.3

PAKISTAN *11 - investments*

INDUSTRY	32.2
FINANCIAL INTERMEDIARIES	10.3
RENEWABLE NATURAL RESOURCES	0.1
WATER	25.0
HOUSING FINANCE	2.5

SRI LANKA *3 - investments*

FINANCIAL INTERMEDIARIES	12.6
RENEWABLE NATURAL RESOURCES	5.5
POWER	15.2

SOUTH EAST ASIA

INDONESIA *11 - investments*

INDUSTRY	15.1
RENEWABLE NATURAL RESOURCES	47.6
POWER	5.1

MALAYSIA *12 - investments*

INDUSTRY	3.8
FINANCIAL INTERMEDIARIES	1.9
MINERALS	0.3
RENEWABLE NATURAL RESOURCES	96.3

PHILIPPINES *7 - investments*

FINANCIAL INTERMEDIARIES	1.2
MINERALS	4.3
RENEWABLE NATURAL RESOURCES	7.6
POWER	29.8
TELECOMMUNICATIONS	10.9

SINGAPORE *1 - investment*

WATER	0.1

THAILAND *9 - investments*

INDUSTRY	2.6
FINANCIAL INTERMEDIARIES	25.5
RENEWABLE NATURAL RESOURCES	41.2
HOUSING FINANCE	7.4

PACIFIC ISLANDS

FIJI *6 - investments*

RENEWABLE NATURAL RESOURCES	11.3
POWER	6.8
HOUSING FINANCE	*0.0

PAPUA NEW GUINEA *9 - investments*

FINANCIAL INTERMEDIARIES	5.1
RENEWABLE NATURAL RESOURCES	72.2
POWER	8.0
HOUSING FINANCE	2.1

SOLOMON ISLANDS *3 - investments*

RENEWABLE NATURAL RESOURCES	25.7
HOUSING FINANCE	1.0

VANUATU *2 - investments*

RENEWABLE NATURAL RESOURCES	1.6
HOUSING FINANCE	0.3

All Figures in £m

** 0.0 = Investments of less than £100,000*

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CDC

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Telephone: (national) 071 828 4488, (international) +44 71 828 4488
Telex: (national) 21431 VELOP G, (international) +51 21431 VELOP G
Fax: (national) 071 828 6505, (international) +44 71 828 6505

NOVEMBER 1993

DESIGNED AND PRODUCED BY McAVOY SLEIGH HIERS DESIGN PARTNERSHIP. IN ALLIANCE WITH BIRKS

CDC

Provides finance and offers long-term loans and risk capital to new and existing enterprises. It also manages and owns a number of companies.

CDC

Operates in 51 countries and has offices in 18. Last year investments and commitments worldwide were over £1.4 billion. The network of offices, supported by 45 years of specialist experience gained working overseas, gives CDC a unique understanding of the countries in which it operates.

CDC

Understands the way business works in developing countries
Takes a long-term view
Takes risk – particularly country risk
Adds value
Recycles funds into new investments
Invests in financial intermediaries

CDC

Finances enterprises across a range of sectors – Agriculture, Agroprocessing, Aquaculture, Financial Services, Forestry, Industrial Estates, Manufacturing, Mineral Resources, Power and Water, Property Development and Housing, Public Utilities, Telecommunications, Tourism and Hotels, Transport. All projects must be financially viable, technically feasible and environmentally, socially and developmentally sound.

INVESTMENT TERMS

CDC

Invests between £500,000 and £30 million in a business but does not normally finance more than 35% of the total project costs.

Lends in £ sterling and US$.

Prefers equity investments to be less than 20%. On occasion, CDC takes a controlling interest, in which case it provides management.

Interest rates are fixed and based on long-term market rates, plus a margin reflecting country and market risk.

Charges front-end and commitment fees.

Determines grace and repayment terms according to the cash flow of each business.

Realises its investments on a willing seller/willing buyer basis.

For further information on how to apply for CDC funding contact the Business Development Department, CDC, One Bessborough Gardens, London SW1V 2JQ. Tel: 071 828 4488. Fax: 071 828 6505 or one of CDC's overseas offices listed on the back of this publication.

CDC has....

£1.5 BILLION INVESTED AND COMMITTED IN 327 COMPANIES WORLDWIDE – 57% IN THE PRIVATE SECTOR.

£654 MILLION IN RENEWABLE NATURAL RESOURCES

£285 MILLION IN POWER AND WATER

£188 MILLION IN INDUSTRY

£132 MILLION IN DEVELOPMENT COMPANIES AND FINANCIAL INTERMEDIARIES

£83 MILLION IN HOUSING FINANCE

£50 MILLION IN MINERALS

£45 MILLION IN TELECOMMUNICATIONS

£35 MILLION IN HOTELS

£14 MILLION IN TRANSPORT

E C I P

FINANCING DEVELOPMENT IN ASIA, LATIN AMERICA AND THE MEDITERRANEAN

PARTNERS IN DEVELOPMENT

CDC is the British development finance institution. Its purpose is to assist overseas countries in the development of their economies. It does this by investing in new or existing enterprises, concentrating on the private sector. It also manages and owns a number of companies.

With commitments and investments of over £1.4 billion in 360 enterprises across a range of sectors in 48 countries and 45 years of specialist experience, CDC has a unique understanding of the countries in which it operates.

CDC is one of the financial institutions through which ECIP operates. It is the only development finance institution acting for ECIP in the UK.

The European Community supports sustainable economic growth in the developing countries of Asia, Latin America and the Mediterranean. One of the instruments set up to achieve this is EC Investment Partners. ECIP is an integrated programme which acts to facilitate all the various stages of joint venture creation and operation. It aims at small and medium sized companies, but large companies can also benefit if their projects have particular developmental value for the country concerned.

CDC will screen all enquiries and proposals. Projects which meet our own and the EC's investment criteria and in which there is an opportunity for CDC investment will be considered. All projects must be financially viable, technically feasible and environmentally, socially and developmentally sound.

SECTORS IN WHICH CDC OPERATES Agriculture, Agro-processing, Aquaculture, Financial Services, Forestry, Industrial Estates, Manufacturing, Mineral Resources, Power and Water, Property Development and Housing, Public Utilities, Telecommunications, Tourism and Hotels, Transport.

HOW TO INTRODUCE A PROPOSAL

CDC will require the following information:

FACILITY 1

FACILITY 1

IDENTIFICATION OF PROJECTS AND PARTNERS

- description of the organisation which makes the proposal and of the group of companies it wishes to make the identification exercise for,
- description of the proposed action,
- timetable of the detailed action points,
- proposed budget allocation.

FACILITY 2

FACILITY 2

PREPARATION FOR THE CREATION OF A SPECIFIC JOINT VENTURE

- description of the company which makes the proposal, including financial information,
- business strategy for pursuing the project under review,
- outline of the investment project that will be analysed,
- workplan for the action,
- budget breakdown for the proposed action.

FACILITY 3

FACILITY 3

FINANCING OF CAPITAL REQUIREMENTS

- description of the joint venture partners,
- description of the investment (sector, size, financial projections),
- analysis of the technical, economic, financial and regulatory feasibility of the investment (typically this could be the report that has come out of the preparation phase, but there is no obligation to use the ECIP facilities successively),
- amount of equity requested and proposed financial structure of the company.

FACILITY 4

FACILITY 4

HUMAN RESOURCE DEVELOPMENT

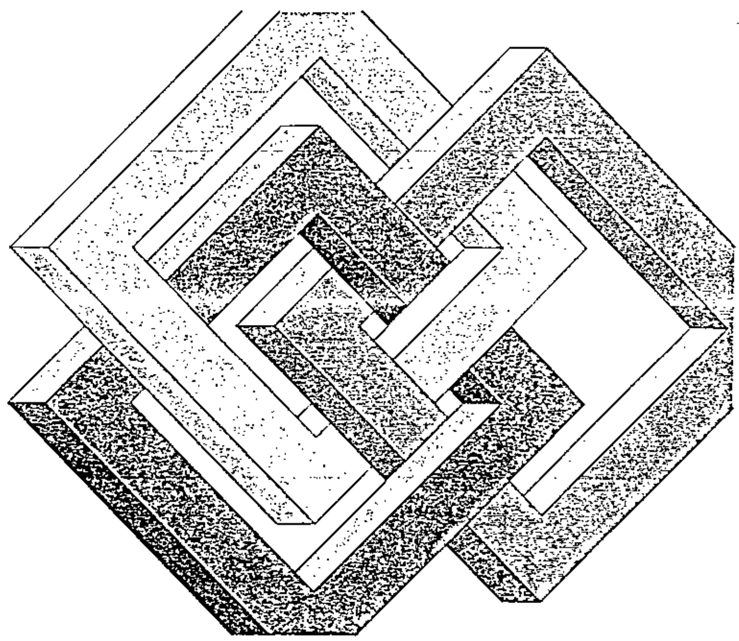
- description of the new or existing joint venture,
- description of the action to be financed,
- work programme,
- budget breakdown.

ECIP'S ESSENTIAL FEATURES

	TYPE OF OPERATION	BENEFICIARIES	ACCESS	TYP FIN
FACILITY 1	Identification of potential joint venture projects and partners	Chambers of commerce, professional associations, public agencies and financial institutions. Individual companies may not benefit from facility 1	The beneficiary may apply directly to the EC or through a financial institution	Grant
FACILITY 2	Operations prior to launching a joint venture	Local or European companies, acting either individually or jointly, wishing to undertake a joint venture investment project	Application to be made through a financial institution	Interest years. T convert project into a g
FACILITY 3	Financing of Capital Requirements	Joint ventures established by partners from the EC and from eligible countries. Both partners must have a meaningful participation Local companies making investments under a licensing and technical assistance agreement with an EC company	Application to be made through a financial institution	Equity *The fin co-fina*
FACILITY 4	Human Resource development: training and management assistance	Joint ventures established by partners from the EC and from eligible countries. Both partners must have a meaningful participation Local companies making investments under a licensing and technical assistance agreement with an EC company	Application to be made through a financial institution	Interest after fiv *The fina co-finan*

DEG – Deutsche Investitions- und
Entwicklungsgesellschaft mbH

Partner DEG: A Brief Portrait



Business Cooperations
in Developing Countries, the Reforming Countries
of Central and Eastern Europe and
the Commonwealth of Independent States

DEG – An Overview

Financing

		1992	1991
New business	Commitments (number)	48	55
	Commitments (millions of DM)	325	315
Total business since 1962 (cumulative)	Enterprises (number)	562	543
	Countries (number)	92	89
	Commitments (millions of DM)	3,276	2,951
	Overall investments (billions of DM)	31.8	30.0
Portfolio (net commitments at end of year)	Enterprises (number)	306	318
	Countries (number)	73	72
	Equity (millions of DM)	535	584
	Loans (millions of DM)	1,503	1,277
	Guarantees (millions of DM)	14	16
	Total net commitments (millions of DM)	2,052	1,877
	Overall investments (billions of DM)	24.6	25.5

Consultancy

	Settled accounts (number)	49	34
	Turnover (millions of DM)	14.1	10.4

Commitment = a financial contribution firmly committed by DEG to a project company or to its partners
Overall investments = the entire financial requirements of the projects (in the case of development banks only the DEG share)

New Partner Countries in the DEG Business

Armenia*
Azerbaijan*
Belarus*
Bulgaria
Czech Republic
Estonia
Georgia
Hungary
Kazakhstan*
Kyrgyzstan*
Latvia
Lithuania
Moldova*
Poland
Romania
Russia*
Slovak Republic
Tajikistan*
Turkmenistan*
Ukraine*
Uzbekistan*

*) *Member countries of the Commonwealth of Independent States (CIS)*

DEG – The Company

Mission and Role

DEG is the German financing and consultative institution promoting private enterprise in its partner countries. These partner countries include the developing countries of Africa, Asia, Latin America and Southern Europe and since the beginning of 1993 also the Reforming Countries of Central and Eastern Europe and the Commonwealth of Independent States (CIS).

DEG promotes enterprises in the said countries, particularly their partnership with German and other European investors. In this function DEG is the universal partner for private investments, joint ventures and other forms of long-term business cooperation.

DEG is one of the few internationally operating institutes able to offer a full package containing investment and cooperation consultancy, investment financing in the form of long-term loans and risk capital, as well as project backup.

DEG has a qualified staff of over 260. As part of its project cooperation, DEG staff pass on to DEG partners the experience gained in more than 560 project financing schemes in over 90 partner countries.

DEG operates in accordance with private enterprise principles. Its projects are profitable, environment-compatible, and make sense in terms of economy as a whole.

Business Partners

DEG business partners are successful enterprises deploying a competitive technology and prepared to enter into investment partnerships or other long-term cooperations, to open up new markets, to secure and extend existing outlets, to extract and process raw materials, or to benefit from cost advantages.

DEG informs entrepreneurs from the Federal Republic of Germany and the partner countries on cooperation opportunities in their business sector and advises its partners in the implementation of concrete projects.

DEG preferably finances joint venture projects in its partner countries with qualified local and/or foreign partners.

Sectoral Range

DEG offers advice and project finance in all sectors where private-enterprise management is assured. There are no particular priorities.

Country Risk

DEG offers advice in cooperation projects and finances investments in all partner countries with acceptable investment conditions for private investors and a sustainable country risk. During the entire term of the project

- private-enterprise management,
- adequate protection for foreign capital investment and
- transfer of earnings and capital

must be assured.

DEG Project Types

Project types co-financed by DEG in the partner countries include:

- Joint venture projects between local and German companies but also between local and other foreign companies,
- 100 % subsidiaries of German and other foreign parent companies,
- local companies without foreign shareholders.

Project Financing

DEG's financing range is oriented to the project company in the investment country and not directly to the investor (principle of project financing).

This means that DEG funds always flow into the jointly financed project company and are not made available to the investor for refinancing his own financial contribution.

Scale of DEG's Financial Contribution

DEG's share in overall finance is in a reasonable proportion to the size of the planned project, while adhering to the principles of strict risk policy. With its investment in the capital of the project company, DEG always remains a minority partner.

DEG's financial contributions are normally between DM 1 million and DM 50 million. In major projects, DEG can assure total financial needs by means of syndicated loans. In the case of smaller projects with an external financial requirement of less than DM 1 million, DEG, acting in the client's interest, arranges adequate local financing in the partner country.

Financing Instruments

DEG has a wide range of financing instruments available for investment in partner countries:

- long-term loans in DM and in US $ – or other hard currency as well in exceptional cases,
- risk investment,
- risk-reduced investment,
- sureties and guarantees within the scope of project financing,
- finance from the European Community's facility „E.C. Investment Partners" for projects in developing countries (except ACP States),
- finance from the European Community's „Joint Venture Phare Programme JOPP" for projects in Central and East European countries.

A combination of the above financing instruments is possible.

DEG financing services may be used both for new business ventures and for investment in extensions, rationalization and modernization or for financial restructuring, but not for straight refunding schemes.

The conditions are market-oriented and tailored to specific projects.

Consultancy

Full Service

DEG offers its business partners comprehensive consultancy in all phases of the planning, preparation, implementation and control of cooperation and investment projects. Where DEG does not perform specific services itself, it obtains these from competent sources for its clients.

Consultancy Focuses

The DEG consultancy range covers the following main areas:

- *internationalization consultancy* including comparative site studies and assistance in seeking partners;
- *project-related concept developments* including the preparation of financing concepts;
- *operational consultancy* with pre-investment analyses, business assessments and proposals for management control;
- *project backup in conjunction with project financing:* DEG backs its joint venture partners with advice in commercial, organizational and personnel questions upon request, or if required to do so by the economic situation of the project enterprise;
- *consultancy for quasi-government institutions in promoting private enterprise:* DEG draws up potential analyses, formulates development strategies and implements promotional measures.

Special Programmes

DEG advises German companies and companies in selected partner countries in questions of business cooperation on behalf of the Federal Ministry for Economic Cooperation and Development as well as of the Commission of the European Community. DEG cooperation consultants have been based in some of these countries. Their work on the spot is supplemented by DEG country-related consultancy services in the Federal Republic of Germany.

Conditions

Consultancy services are available separately from or in conjunction with a DEG financing scheme. Consultancy fees are agreed from case to case. Any advisory services offered within the scope of special programmes are free of charge.

Your Contacts at DEG

Companies interested in investments in the DEG partner countries should apply informally to the following departments at DEG (telephone extension in brackets):

West and South Asia
Klaus Heidenreich (305)

Southeast Asia (Asean)
Bernd Tümmers (315)

East Asia, Oceania
Alexander von Girsewald (524)

East Africa
Berndt Heymanns (349)

Southern Africa
Karl-Heinz Kolz (367)

Central Africa
Max S. Jüntgen (370)

South America
Kersten Buchholtz (443)

Central America, Mexico, Caribbean, Southwest Europe
Hendrik Lühl (448)

Middle East, Southeast Europe, Asian Countries of CIS
Rolf Gerber (421)

North and West Africa
Hildegard Kraus (431)

Central and East European Countries, European Countries of CIS
Klaus Overbeck (310)

Marketing
Hans Joachim Hebgen (402)

Consulting Activities
Reinhard Bollmann (433)

DEG – Deutsche Investitions- und Entwicklungsgesellschaft mbH

DEG – German Investment and Development Company

Belvederestrasse 40
D-50933 Köln (Müngersdorf)
Telephone (+49-221) 4986-0
Fax (+49-221) 4986-290

LONDON CHAMBER of COMMERCE AND INDUSTRY

NAME ______________________

COMPANY NAME ______________________

ADDRESS ______________________

____

TEL: ______________________

(PLEASE AFFIX YOUR BUSINESS CARD HERE)

and return to:
Christiane Chidley
The London Chamber of Commerce and Industry
World Trade

33 Queen Street, London EC4R 1AP
Tel: 071 248 4444
Fax: 071-489 0391

If you are interested in any of the Trade Missions listed, please photocopy and return and we will send you more detailed information as it becomes available.

DATE	DESTINATION	FINANCIAL SUPPORT	CONTACT		☑
1994					
13-18 February	Bulgaria	—	Robert Anthony	Tel: 071-203 1828	☐
11-22 April	Tunisia & Morocco	Jointly with SEEA and Kent Chamber of Commerce & Industry and Banque Marocaine du Commerce Exterieur	Tracey Jacob	Tel: 071-203 1827	☐
7-16 May	Syria & Jordan	£290 (DTI Grant)	Tracey Jacob	Tel: 071-203 1827	☐
16-20 May	Vietnam	£705 (DTI Grant)	Laura Bishop	Tel: 071-203 1820	☐
20-24 June	Indonesia	£790 (DTI Grant)	Laura Bishop	Tel: 071-203 1820	☐
20 June -1 July	Japan	£740 (DTI Grant)	David Roberts	Tel: 071-203 1826	☐
20 June -1 July	Australia & New Zealand	£960 (DTI Grant) (Jointly with ABCC UK)	Laura Bishop	Tel: 071-203 1820	☐
June	Luxembourg, European Information Bureau	—	Beth Rayney Cucala	Tel: 071-203 1837	☐
June/July	Russia	£340 (DTI Grant)	Robert Anthony	Tel: 071-203 1828	☐
5-16 September	Hong Kong & China	£595 (DTI Grant)	David Roberts	Tel: 071-203 1826	☐
26 September-7 October	Brazil	£650 (DTI Grant)	Merilyn Potter	Tel: 071-203 1825	☐
October	Ethiopia & Uganda	£575 (DTI Grant)	Tracey Jacob	Tel: 071-203 1827	☐
October	Korea	£745 (DTI Grant)	David Roberts	Tel: 071-203 1826	☐
November	Colombia/Venezuela	£645 (DTI Grant)	Merilyn Potter	Tel: 071-203 1825	☐
November	Cyprus & Malta	£275 (DTI Grant)	Beth Rayney Cucala	Tel: 071-203 1837	☐
November	European Commission, Brussels	—	Beth Rayney Cucala	Tel: 071-203 1837	☐
November	Oman & UAE	£445 (DTI Grant)	Tracey Jacob	Tel: 071-203 1827	☐
November	Philippines	£735 (DTI Grant)	Laura Bishop	Tel: 071-203 1820	☐
November	Slovenia	—	Robert Anthony	Tel: 071-203 1828	☐

Figures shown for financial support indicate the level of DTI grant available and relate to the highest rated market on the mission.

LONDON CHAMBER of COMMERCE AND INDUSTRY

NAME ____________________

COMPANY NAME ____________________

ADDRESS ____________________

____

TEL: ____________________

(PLEASE AFFIX YOUR BUSINESS CARD HERE)

and return to:

Clare Burton or Roger Pilkington
The London Chamber of Commerce and Industry
Exhibitions

Europe House,
World Trade Centre, London E1 9AA
Tel: 071- 488 3399
Fax: 071-702 0066

If you are interested in any of the Overseas Exhibitions listed, please photocopy and return and we will send you more detailed information as it becomes available.

DATE	EXHIBITION	EXHIBITION No	LOCATION	✓
1994				
10-13 January	HORECAVA 94 Food, Hotel & Catering Exhibition	E4/090	Amsterdam, Netherlands	☐
22-25 January	MEFEX 94 8th Food, Hotel & Catering Exhibition	E4/091	Bahrain	☐
1-4 March	SICUR 94 International Security, Safety and Fire Exhibition	E4/092	Madrid, Spain	☐
11-16 March	INTERNORGA 94 Food, Hotel, Restaurant, Catering, Bakery and Confectionery.	E4/093	Hamburg, Germany	☐
12-15 April	FOOD & HOTEL ASIA 94 9th Asian International Exhibition of Food & Drink, Hotel, Restaurant & Catering Equipment, Supplies and Services	E4/094	Singapore	☐
6-9 May	MIDO 94 Optics, Optometry & Ophthalmology Exhibition	E4/098	Milan, Italy	☐
2-6 October	SAUDI AGRICULTURE 94 13th Agriculture, Irrigation and Agri-Industry Show	E4/001	Riyadh, Saudi Arabia	☐
11-14 October	SECURITY ESSEN 94 International Exhibition for Security	E4/002	Essen, Germany	☐
13-16 October	INTERNATIONAL HOSPITALITY SHOW 94 Food, Hotel, Catering and Hospitality	E4/003	Bangkok, Thailand	☐
1995				
January	HORECAVA 95 Food, Hotel & Catering Exhibition	E5/004	Amsterdam, Netherlands	☐
22-25 January	SAUDI FOOD 95 Food, Hotel and Catering	E5/005	Riyadh, Saudi Arabia	☐
March	INTERNORGA 95 Food, Hotel, Catering, Restaurant, Bakery and Confectionery	E5/006	Hamburg, Germany	☐
March	EQUITANA 95 Equestrian Show	E5/007	Essen, Germany	☐
May	MIDO 95 Optics, Optometry & Ophthalmology Exhibition	E5/008	Milan, Italy	☐

LONDON CHAMBER of COMMERCE AND INDUSTRY

DATE	DESTINATION	FINANCIAL SUPPORT	CONTACT	
1995				
February	Malaysia	£705 (DTI Grant)	Laura Bishop	Tel: 071-203 18
February	Jamaica/Puerto Rico	£470 (DTI Grant)	Merilyn Potter	Tel: 071-[illegible] 18
March	Chile/Argentina	£795 (DTI Grant)	Merilyn Potter	Tel: 071-[illegible] 18
March	Sri Lanka	£530 (DTI Grant)	Tracey Jacob	Tel: 071-[illegible] 18
March	Turkey	£275 (DTI Grant)	Beth Rayney Cucala	Tel: 071-[illegible] 18
-	Ukraine	£340 (DTI Grant)	Robert Anthony	Tel: 071-203 1[illegible]
-	Poland	£200 (DTI Grant)	Robert Anthony	Tel: 071-[illegible] 1[illegible]

CHAMBER SERVICES

The Chamber also provides a number of services which complement our trade missions and exhibitions programme, including:

- Market Information
- Reduced rate documentation, such as ATA Carnets
- Discounted travel insurance
- Workshops and seminars
- Training

as well as advice on:

- exporting
- movement of goods
- payment terms
- import charges
- importing
- customs
- distribution procedures
- marketing

If you would like to know more about these and other services, please call the Membership Department

Tel: 071-203 1809

COMING EVENTS

JANUARY / FEBRUARY 1994

LONDON CHAMBER of COMMERCE AND INDUSTRY

DATE	EVENTS	TIME	DEPARTMENT	CONTACT		✓
January 1994						
11 January	Meeting with Commercial Secretary, British Embassy, Bucharest	1600	Europe	Bob Anthony	071 203 1828	▭
13 January	Joint Meeting with CBI to meet group led by President of Albanian Chamber of Commerce	1530	Europe	Bob Anthony	071 203 1828	▭
17 January	Business Opportunities in Water Treatment & Pollution Control in India & Thailand (with CDC)	Morning	World Trade	Laura Bishop	071 203 1820	▭
18 January	Foundation Course in Exporting	0930-1630	Training	Lorraine Gaiger	071 203 1880	▭
19 January	Crossrail Presentation & Reception	1800-2030	Events	Melanie Dewitt	071 203 1875	▭
20 January	• Landlord & Tenant Law. An up-date on current law issues concerning Commercial and Residential Leases: Presented by Binks Stern - Solicitors	1745-2030	Events	Melanie Dewitt	071 203 1875	▭
24-25 January	Effective Teams: 2 day workshop for managers wanting to work effectively through formal and informal teams	0900-1730	Executive Development	Judy Rogers	071 203 1879	▭
26 January	• Small Business Club (Bank Interest - Are you paying over the odds ?) Presented by Independent Bank Auditing Ltd	1645-2000	Events	Lorraine De Costa	071 203 1874	▭
28 January	Boardroom Effectiveness: intense 1 day workshop for Chairmen, Executive and Non-Executive Directors, Managing and Senior Partners	0900-1730	Executive Development	Judy Rogers	071 203 1879	▭
2 February	Jubilee Line Extension Sub Contract Opportunities	0930-1430	Events	Lorraine De Costa	071 203 1874	▭
',3,4 February	Select, Retain, Develop Key Staff: 3 day workshop for managers responsible for defining staff requirements through to managing performance	0900-1730	Executive Development	Judy Rogers	071 203 1879	▭
i February	Meeting with Hungarian Business Delegation		Europe	Bob Anthony	071 203 1828	▭
-8 February	Selling on the Upturn: 2 day course to improve effectiveness in generating leads and securing business	0900-1730	Executive Development	Judy Rogers	071 203 1879	▭
'Date to be advised)	BAA PLC (Gatwick Airport) Presentation & Reception	1800-2000	Events	Ian Weatherhead	071 203 1877	▭
February	Introduction to Importing	0930-1630	Training	Lorraine Gaiger	071 203 1880	▭
10-11 February	Finance for Managers: 2 day workshop covering the essentials of financial and management accounting for middle and senior managers	0900-1730	Executive Development	Judy Rogers	071 203 1879	▭
5 February	Exporting: Understanding the Paperwork	0930-1230	Training	Lorraine Gaiger	071 203 1880	▭
15 February	Finance: Documentary Letters of Credit	1330-1630	Training	Lorraine Gaiger	071 203 1880	▭
;-17 February	Negotiation - From Confrontation to Collaboration: 2 day workshop for managers negotiating within their own organisation or with clients and suppliers	0900-1730	Executive Development	Judy Rogers	071 203 1879	▭
'1 February	Tele-Appointing	0930-1700	Training	Lorraine Gaiger	071 203 1880	▭
February	Making the Business Case: 1 day workshop on writing and presenting proposals for middle and senior managers	0900-1730	Executive Development	Judy Rogers	071 203 1879	▭
February	Planning Your Exports Seminar	0900-1700	Europe	Z Peacock	071 203 1834	▭
24 February	Exporting Your Services Seminar	0900-1630	Europe	Z Peacock	071 203 1834	▭
February	Luncheon: The Rt Hon John Gummer MP Secretary of State - Department of the Environment	1230-1500	Events	Ian Weatherhead	071 203 1877	▭
24-25 February	Managing Change: 2 day workshop providing managers with the concepts and techniques to manage change with and through people	0900-1730	Executive Development	Judy Rogers	071 203 1879	▭
te to be advised)	Members Open Day		Membership	Marie King	071 203 1808	▭
March						
(Date to be advised)	Doing Business with Metz and the Moselle Region	1500-2000	Europe	Beth Rayney Cucala	071 203 1837	▭
March	Property & Construction Group Meeting & Reception Mr Christopher Howes, Chief Executive, Crown Estate	1745-2000	Events	Melanie Dewitt	071 203 1875	▭
02 March	Distribution: The Movement of Exports & Customs Procedures	0930-1630	Training	Lorraine Gaiger	071 203 1880	▭
March	Presenting at Conferences: 2 day course covering the skills necessary to address conferences or formal groups	0900-1730	Executive Development	Judy Rogers	071 203 1879	▭

LONDON CHAMBER of COMMERCE AND INDUSTRY

DATE	EVENTS	TIME	DEPARTMENT	CONTACT		✓
10-11 March	Managing Key Customers: 2 day workshop for those reponsible for developing current customer relationships and new business opportunities.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
15 March	Seminar on Export Distribution	0900-1230	Europe	Z Peacock	071 203 1834	
15 March	Foundation Course in Exporting	0930-1630	Training	Lorraine Gaiger	071 203 1880	
16 March	Seminar on Export Payments	0900-1230	Europe	Z Peacock	071 203 1834	
16-17 March	Communicating: 2 day workshop for managers to enhance their range of communication skills and see how behaviours may be interpreted by others	0900-1730	Executive Development	Judy Rogers	071 203 1879	
17 March	BAA PLC (Stansted Airport) Presentation & Reception	1800-2000	Events	Ian Weatherhead	071 203 1877	
17 March	Slovenia - Inward Mission and Conference		Europe	Bob Anthony	071 203 1828	
18 March	Organising and Opening the Sale	0930-1700	Training	Lorraine Gaiger	071 203 1880	
21 March	Planning your Exports Seminar	0930-1700	Europe	Z Peacock	071 203 1834	
21 March	Import Customs Practice	0930-1630	Training	Lorraine Gaiger	071 203 1880	
22 March	Exporting Your Services Seminar	0900-1630	Europe	Z Peacock	071 203 1834	
22/23 March	Finance for the Non Financial Executive	0930-1700	Training	Lorraine Gaiger	071 203 1880	
24 March	Personal Effectiveness: 1 day workshop giving managers the opportunity to rethink and improve their personal work style	0900-1730	Executive Development	Judy Rogers	071 203 1879	
30 March	Leadership: 1 day workshop to help managers identify and adapt their style of leadership in order to become more effective	0900-1730	Executive Development	Judy Rogers	071 203 1879	
13-15 April	Growing an International Business: 3 day workshop addressing the management of international marketing and business development	0900-1730	Executive Development	Judy Rogers	071 203 1879	
18-19 April	Negotiation - From Confrontation to Collaboration: 2 day workshop for managers negotiating within their own organisation or with clients and suppliers.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
20-21 April	Finance for Managers: 2 day workshop covering the essentials of financial and management accounting for middle and senior managers.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
29 April	Making the Business Case: 1 day workshop on writing and presenting proposals for middle and senior managers.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
9-10 May	Selling on the Upturn: 2 day course to improve effectiveness in generating leads and securing business.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
18-19 May	Presenting at Conferences: 2 day course covering the skills necessary to address conferences or formal groups.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
26-27 May	Managing Change: 2 day workshop providing managers with the concepts and techniques to manage change with and through people.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
1-3 June	Select, Retain, Develop Key Staff: 3 day workshop for managers responsible for defining staff requirements through to managing performance.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
6 June	Leadership: 1 day workshop to help managers identify and adapt their style of leadership in order to become more effective.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
8 June	Personal Effectiveness: 1 day workshop giving managers the opportunity to rethink and improve their personal work style.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
9-10 June	Communicating: 2 day workshop for managers to enhance their range of communication skills and see how behaviours may be interpreted by others.	0900-1730	Executive Development •	Judy Rogers	071 203 1879	
16-17 June	Managing Sales Information: 2 day workshop to help managers define their requirements for sales information system and to work towards successful implementation.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
23-24 June	Effective Teams: 2 day workshop for managers wanting to work effectively through formal and informal teams.	0900-1730	Executive Development	Judy Rogers	071 203 1879	
June	Visit to European Investment Bank, Luxembourg	2 days	Europe	Peter Bishop	071 203 1835	

• COMPLIMENTARY EVENTS

Companies interested in the LCCI 1994/95 Trade Mission and Exhibition programme should contact Christiane Chidley - 071 203 1820 fax: 071 489 0391

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