

EVALUATION OF THE INDUSTRY AND ENVIRONMENT PROGRAMME

UNITED NATIONS ENVIRONMENT PROGRAMME

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SUMMARY

Introduction:

Since the foundation of UNEP in 1975, activities in the field of industry and environment have been initiated. The Industry and Environment Office was established in Paris in 1975. In different sessions, the Governing Council addressed its activities and underlined the necessity of pursuing activities in the field of low- and non-waste technologies.

The UNEP Governing Council at its sixteenth session in 1991 decided to establish the Industry and Environment/Programme Activity Centre (IE/PAC).

The present evaluation covers the period from 1992 until 1995.

The evaluation team has consulted a number of experts within UNEP, in different international organizations, industry associations and Governments. A list of interviewees is given in Annex I.

Furthermore, a number of relevant documents were reviewed (listed in Annex II).

UNEP IE/PAC

The UNEP IE/PAC carries out the following programme activities:

- Cleaner Production (CP) programme
- Industrial Sector programme
- Awareness and Preparedness for Emergencies at Local Level (APELL) programme
- Environmental Technology Assessment (EnTa)
- Industrial Outreach
- OzonAction programme.

The OzonAction programme is not included in the present evaluation as it is a rather independent and separate programme within IE/PAC.

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The available manpower and funding of IE/PAC are shown in the table below.

	UNEP financing	External financing	UNEP-staff		Seconded staff (Man/years)
General:	Total for all programme activities: (in US dollars)	Funders: Amount	P	GS	P
	1991: 2,078,000	US CEC, France US/EPA, Netherlands: 270,000	5	9	3,5 DK, UK, France, ICA
	1992: 2,870,000	US CEC, US/EPA, France: 320,000	6	11	3,5 DK, UK, France, ICA
	1993: 3,852,000	US, CEC, EPA, UK, France: 345,000	6	11	4,5 DK, UK, US ICA, France
	1994: 2,967,000	US, Norway, France Netherlands: 540,000	6	11	4,5 DK, UK, US, NL France, ICA
	1995: 3,164,000	US/EPA, CEC, France: 490,000	8	11	5,5 DK, UK, US NL, France

Evaluation comments

During the period 1992 to 1995, IE/PAC produced an impressive number of outputs. In particular, the CP programme, APELL and Industrial Pollution Management have been very productive, especially when the limited IE/PAC resources (manpower and budget) are taken into account.

Almost all interviewees expressed interest in the Industry and Environment subprogramme and were of the opinion that IE/PAC was one of the most efficient organizations within UNEP. IE/PAC has developed a number of partnerships with different international organizations - Organisation for Economic Cooperation and Development (OECD); United Nations Industrial Development Organization (UNIDO); World Bank; International Labour Organization (ILO); International Maritime Organization (IMO); International Chamber of Commerce (ICC); International Chemical Association (ICA) - Governments, other UNEP departments, etc.

IE/PAC's outputs were produced with very limited resources (see table above). An important part of IE/PAC's manpower is seconded by Governments or other international organizations. IE/PAC becomes more or less dependent on temporary staff, which leads to regular loss of knowledge and expertise due to the high rate of professional staff turnover.

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Based on the above observations, the evaluation team came to the following conclusions and recommendations:

Conclusions

Due to restricted manpower and funding, IE/PAC has been obliged to develop a working method which enables it to produce good outputs, despite limited resources. This working method is characterized by:

- Partnerships with other international organizations and Governments. Although international cooperation is of course recommended, IE/PAC has become too dependent on the initiatives of other organizations. Limited resources make it almost impossible for IE/PAC to develop its own activities and programmes.
- A general strategy with less immediate focus on UNEP priorities, enabling IE/PAC to participate in the upcoming initiatives of other organizations (flexibility);
- A wide variety of activities, which means less depth and less focus.

As a result the following conclusions concerning this situation can be made:

General conclusions

1. IE/PAC proves to be a very productive group producing an impressive number of relevant, industry-oriented outputs with a minimum of resources. IE/PAC outputs have high quality and are appreciated by representatives from industry, government, environmental organizations and other stakeholders.

Taking the available resources into account, IE/PAC clearly addresses its main goals and objectives in its activities and has made important contributions to changing industrial practices and developing governmental policies.

IE/PAC is considered to be a highly valued organization and an important agent in its field. Several interviewees from governmental and industrial organizations considered IE/PAC to be an outstanding organization, especially when compared with other United Nations and UNEP bodies.

2. IE/PAC's productivity is even more impressive when available resources are taken into account: the number of current staff and amount of UNEP funding may be considered almost insufficient. This is one of the main reasons why the internal organization of IE/PAC is rather fragmented:
 - * Insufficient resources (manpower, funds) to perform its activities and maintain sufficient and adequate relationships in the industrial environmental network;
 - * Strong dependency on seconded professional staff with well-defined and focused terms of reference. Seconded staff have temporary assignments, creating regular loss of knowledge, experience and networks.

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Lack of resources is also one of the main causes for insufficient internal cooperation between IE/PAC programmes. The effectiveness of IE/PAC could be improved by increased internal communication and development of integrated efforts.

3. IE/PAC has developed a strategic programme on the basis of its main goals and objectives. This programme, however, is of a rather general nature. The evaluation team concludes that this is a deliberate choice of IE/PAC management, forced by available - restricted - manpower and funding. The current strategy is mainly used as a guideline to decide upon participation in projects, activities and opportunities offered by outside stakeholders such as other international organizations, industries, Governments, etc. This gives a rather ad hoc nature to IE/PAC's portfolio of activities and projects. Only in a very limited number of cases has IE/PAC been able to develop a longer-term (1 to 2-year) programme in which awareness-building, material development, training courses and information dissemination follow one another in a logical sequence.

Due to the above-mentioned lack of resources, IE/PAC's programme depends too much on initiatives from other organizations. By setting more specific and focused priorities, IE/PAC could increase its effectiveness.

Conclusions concerning IE/PAC's programmes

4. The CP programme carried out a wide range of activities and realized an impressive number of outputs (training courses, publications, demonstration projects, workshops and seminars).

This programme, in particular, depends on seconded staff. Until recently, the CP programme had no UNEP Professional staff!

Internationally the CP programme is considered to be the main programme for CP information dissemination and transfer of knowledge and technology to developing countries.

5. The APELL programme is also considered to be one of the main international programmes in the field of emergency preparedness. The quality of its products (guidelines, training courses) justifies increased efforts in information dissemination. The number of APELL training courses and demonstration activities should be increased.
6. The Industrial Pollution Management programme has also been productive by developing a number of industrial sector technical guidelines and organizing workshops and training courses.

However, not all guidelines are well focused on clear target groups (industry, small- and medium-sized enterprises (SMEs) in developing countries, etc.).

There are no specific conclusions concerning the other programme elements of IE/PAC (EnTa, Tourism, Industry Outreach). The general conclusions apply sufficiently to these activities.

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Recommendations

Strategy development

A longer-term IE/PAC strategy should be developed in the field of industrial environmental management, incorporating the current programmes. On the basis of such a strategy, a work programme, including required manpower and UNEP funding, can be formulated. The evaluation team concluded that currently available IE/PAC resources are insufficient to maintain an effective programme of activities.

The evaluation team recommends an increase in manpower and resources up to a level comparable with the OzonAction programme resources. This would, approximately, mean a doubling of Professional staff and of IE/PAC's budget. An important element of IE/PAC's programme should be that at least 50 per cent of its activities will be developed independently of the activities of other organizations. The implementation of these activities should, of course, also involve international cooperation with appropriate organizations.

As part of this strategy development, a survey should be made of the positioning of UNEP among other international organizations and their responsibilities, tasks and programmes.

Internal management

A stronger basis should be created for internal coordination and management within IE/PAC by an improved integration of the different programme activities.

- o Cleaner Production (CP);
- o Industrial Sector Programme;
- o APELL;
- o EnTa;
- o Tourism;
- o Industrial Outreach.

This integration may be realized by assigning an internal coordination task to one of the programme coordinators.

Such internal coordination will also stimulate individual IE/PAC staff members to contribute more intensively to the further development of the work programme, to exchange experiences and thus improve the various programme's outputs (quality improvement).

External advice

An Industry and Environment Advisory group should be set up to assist IE/PAC in the implementation of its tasks. This group may be organized by combining the Cleaner Production Core Group with some of the other regular or ad hoc advisory groups of IE/PAC programmes.

Take care of regular renewal of the advisory group in line with (expected) new directions in the work programme content.

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Improve the involvement of working groups, National Cleaner Production Centres (NCPCs) and different target groups, especially from developing countries, in work programme development.

Programme elements

The above recommendations refer to IE/PAC as a whole. Based on comments received from the interviewees the following recommendations on specific programme elements were developed:

1. IE/PAC already organized a successful workshop on "Sustainable consumption". In view of the direct links between sustainable production and sustainable consumption the team recommends direct cooperation between IE/PAC and UNEP's Regional Office for Europe in Geneva, now in charge of developing a Sustainable consumption programme. We recommend putting both programmes (Sustainable production and Sustainable consumption) together in one UNEP activity.
2. Communication links between IE/PAC's APELL programme and national focal points should be improved.

1. INTRODUCTION

The Industry and Environment programme of UNEP has existed in some form or another since the foundation of UNEP after the Stockholm Conference in 1972. The Governing Council regularly discussed issues under this theme and especially referred to activities in the fields of low- and non-waste technologies and industrial-sector-oriented programmes.

In 1991, the Governing Council in its decision 16/25 strengthened the position of the Industry and Environment Office in Paris and established it as the Industry and Environment Programme Activity Centre (IE/PAC).

This decision and the priorities and long-term goals formulated therein have been taken as the starting point for the present evaluation, which therefore covers the period from 1992 until 1995.

The main elements of IE/PAC are:

- The OzonAction programme;
- The Cleaner Production (CP) programme;
- The Industrial Sector programme;
- Environmental Technology Assessment (EnTa);
- Awareness and Preparedness for Emergencies at Local Level (APELL);
- Tourism;
- Industrial Outreach.

The OzonAction programme is not dealt with here, as it is considered outside the scope of the present evaluation. This programme has a special, rather independent status within IE/PAC and is entirely financed from sources other than regular UNEP funds. Also, this programme has been part of another evaluation: the study on the financial mechanism of the Montreal Protocol, (UNEP/COWIconsult, March 1995).

The terms of reference of the evaluation are given in Appendix 1. As the different elements of these deal with similar aspects of the IE/PAC programme, there is some overlap in the different chapters of this evaluation report.

The evaluation has been conducted through interviews with IE/PAC staff, with industrial and governmental experts from different countries who are familiar with the IE/PAC programme and by examining IE/PAC inputs (work programme, resources) and outputs (workshop/seminar reports, publications).

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2. SUBPROGRAMME DESIGN AND ACCOMPLISHMENTS

2.1 Background and objectives

From the start of UNEP in 1975, activities in the field of industry and environment were been initiated. The Industry and Environment Office in Paris was established in 1975. In different sessions, the Governing Council addressed its activities and underlined the necessity of pursuing activities in the field of low- and non-waste technologies (cleaner production), environmental management in different industrial sectors and the promotion of training activities and information dissemination.

In May 1991, the Governing Council at its sixteenth session in its decision 16/25 strengthened the position of the Industry and Environment Office by establishing it as the Industry and Environment Programme Activity Centre (IE/PAC). At that same session, the Governing Council formulated the priorities and long-term goals for IE/PAC in four fields of activities, as shown in Table 1 below.

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Table 1: Priorities and long-term goals of IE/PAC (decision 16/25)

Field of activity	Priority	Long-term goal
Promotion of the environmentally sound management of selected industrial sectors	To maintain a consultative process with industry and prepare and disseminate technical guidelines in a number of industrial sectors, including tourism, transportation and the working environment.	To review the environmental implications of all industrial sectors and the impact of improved technologies on the enhancement of the state of the environment, particularly with respect to air and water pollution.
Promotion of the Cleaner Production network	To establish and operate a network of industries and organizations dedicated to "cleaner production" through industrial-sector working groups, a newsletter and a computerized information exchange system.	To strengthen national capabilities for managing industrial development to avoid adverse environmental impacts.
Prevention of industrial accidents	Development of the Awareness and Preparedness for Emergencies at Local Level (APELL) programme to prevent industrial accidents and reduce their impacts on the environment.	Improved emergency response and prevention of industrial accidents.
Technical support to developing countries	Operation of a query-response service, establishment of a database on industry and environment issues, training workshops on environmentally sound (low- and non-waste) technologies and on hazardous waste management.	To strengthen national policies and capabilities for managing industrial development in an environmentally sound way.

In 1992, on the basis of the results of the United Nations Conference on Environment and Development (UNCED), as formulated in Agenda 21, IE/PAC reconsidered its strategies and policy. To assist IE/PAC in this process, an external advisory group meeting was organized on 18 September 1992. Since then, the goals of IE/PAC have been set down as in Table 2 below.

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Table 2: Main goals of IE/PAC since UNCED

Main goals of IE/PAC

- * Define and encourage the incorporation of environmental criteria into industrial development;
- * Help formulate policies, strategies and management tools for sustainable industrial development and build the capacity for their implementation;
- * Promote preventative environmental protection through cleaner, safer production as well as other pro-active approaches;
- * Stimulate the exchange of information on environmentally sound technologies and forms of industrial development.

IE/PAC also carries out the clearing-house function for the implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer. As the OzonAction programme is financed through different and specific schemes and has a separate, rather independent position within the IE/PAC office, this programme has not been the subject of the present evaluation.

From the above general goals, IE/PAC derived the following strategy, formulated in the 1994 - 1995 Work Programme:

Needs identified are:

- To support and advise Governments in the definition and implementation of sustainable industrial policies and strategies;
- To encourage a change in industrial technologies, practices and management systems to be consistent with sustainable development.

The results to achieve are:

- Prevention and reduction of industrial pollution and risks;
- More efficient use of natural resources (including energy).

The focus is to be on:

- Catalysing the preventive approach;
- Assisting in control and remediation efforts that integrate the preventive approach;
- Working with sectors of industry (including extraction, manufacturing and services) which involve:
 - * High-risk chemicals and processes;
 - * A significant use of energy and raw materials;

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* A major risk to or impact on natural resource use, habitat and biodiversity.

Strategies are to be used that:

- Catalyse, promote, facilitate, assess, support, inform, create and train;
- Not those that collect data, enforce or monitor.

In a way that:

- Builds upon and integrates what has already been done within UNEP and elsewhere;
- Builds consensus among stakeholders;
- Builds endogenous capacity at the regional and local level;
- Provides new tools and information;
- Works with others;

* Within UNEP: other subprogrammes and convention secretariats. Of particular relevance are toxic chemicals and waste; health, human settlements and welfare; environmental economics; capacity-building.

* Outside UNEP: partners and clients.

- Provides elements that enable Regional Offices to deliver the UNEP Industry and Energy work programme.

Comments and conclusions of the evaluation team

The general goals of IE/PAC as formulated after UNCED address appropriately the priorities and long-term goals as formulated in the UNEP Governing Council decision, providing the legislative basis for IE/PAC activities. However, IE/PAC's current main goals do not specifically mention the following Governing Council priorities:

- Focus on technical support to developing countries;
- Promotion of a cleaner production network;
- Dissemination of technical guidelines in a number of industrial sectors, including tourism and transport.

Nevertheless, in IE/PAC's work programme several activities related to the above Governing Council priorities, have been indicated and elaborated.

The strategy formulated by IE/PAC on the basis of these long-term goals provides a more concise background for the development of IE/PAC activities. The nature of the strategy is to be considered as rather general. From the perspective of required organizational flexibility, this broad strategy

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offers IE/PAC the opportunity to develop a client- and partner-oriented work programme. It is not completely clear to the evaluator, however, to what extent the strategy takes into account activities already performed by other organizations, the specific target groups or regional organizations (UNEP Regional Offices, other regional institutes, National Cleaner Production Centres (NCPCs), etc). Although IE/PAC has developed broad cooperation with a large number of organizations, it could make more effective use of these contacts for further optimization of its strategic planning and implementation of its work programme.

2.2 IE/PAC achievements and products

The following paragraphs provide a general overview of the products and outputs of IE/PAC in the period 1992 to 1995. It was impossible to highlight all activities and outputs in detail. Therefore, the overview mentions the main activities providing insight in the working methods, cooperation with other national and international organizations and the nature of IE/PAC's activities.

2.2.1 Cleaner Production (CP)

The CP programme was established in 1989, in response to UNEP Governing Council decision 15/27, to create a network for the exchange of information on low- and non-waste technologies between the Industry and Environment Office, Governments, industry, research institutions and other organizations. The CP programme is implemented through the activities outlined below.

ICPIC

The CP programme's computer-based information exchange, the International Cleaner Production Information Clearing-house (ICPIC), was set up with the assistance of the United States Environmental Protection Agency (EPA). ICPIC is continuously being expanded and updated.

An ICPIC review conducted recently concluded the following:

- About 80 per cent of ICPIC information did not sufficiently relate to CP information;
- ICPIC was rarely used;
- The system was considered very user-unfriendly.

On the basis of this review, a floppy disk version of ICPIC is now under development. Also, the information in ICPIC is being updated.

CP publications

In 1990, the first two issues of the Cleaner Production Newsletter were distributed to over 5,000 readers in 160 countries. A new publication, Cleaner Production Worldwide, was launched in 1993. Produced with the support of the United Kingdom, it details concrete case studies of cleaner production from 14 countries around the world. In 1995, a second issue of Cleaner Production Worldwide was published, next to a regional edition of Cleaner Production Worldwide for the Asia/South Pacific region. A

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publication on "Governmental Strategies and Policies" was also developed, providing background information on the development of cleaner production policies and at the governmental level.

Besides the above publications, the CP programme published a number of international seminar reports, an Audit and Reduction Manual for Industrial Emissions and Wastes, an ICPIIC User Guide and a series of publications in the Industry and Environment Review.

CP Working Groups

UNEP cleaner production working groups have the following objectives:

- Establishment of an international network of experts in their field;
- Identification of opportunities for cleaner production and development of ICPIIC case studies;
- Dissemination of information through the international network and through IE/PAC;
- Development and implementation of cooperative activities between members of the network and with other organizations.

Working groups generally have members from research groups, industry, Governments and consultancies.

Current cleaner production working groups cover:

- Tanneries;
- Pulp and paper;
- Metal finishing;
- Textile;
- Education;
- Biotechnology for cleaner production;
- Sustainable products.

The industrial working groups identified cleaner production techniques, experts and publications. ICPIIC obtained more than 150 case studies in 1991 from the tannery and the textile working groups. The tannery group also provided a list of experts and a bibliography for ICPIIC. The working group on policies, strategies and instruments to promote cleaner production initiated four seminars. A report on courses and training programmes on cleaner production was compiled by the education working group. The biotechnology group provided several detailed case studies. Recently an international workshop was organized, entitled "Biotechnology for Cleaner Production". The working groups create international expert networks and collect case studies and literature which will be made available through ICPIIC. The product group recently published a directory of experts and

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organizations around the world dealing with cleaner products.

CP seminars and workshops

The Government of the United Kingdom hosted the first Industry and Environment Office (IEO) Cleaner Production Seminar in Canterbury, in September 1990. Topics discussed included strategies for the promotion of cleaner production methods and clean products, information and technology transfer, and the findings of the industrial working groups. In September 1991, IEO held a workshop in Paris on country-specific activities to promote cleaner production. Experts from Governments, industry and academia from 17 countries attended, and nine international organizations were represented.

IE/PAC organized a Ministerial Meeting and Second Senior-Level Seminar on Cleaner Production in Paris in October 1992, attended by more than 200 cleaner production experts. The Ministerial Meeting agreed to launch projects in the pulp and paper and cement industries in Egypt, Senegal and Zimbabwe to demonstrate the opportunities for and barriers to cleaner production. The Seminar recommended the establishment of NCPCs. Four national cleaner production workshops were held in 1992: in Bombay, with the Indian Chemical Manufacturers' Association and the World Bank; in Xiamen, China, with the National Environmental Protection Agency (NEPA) and Fujian Province Environment Bureau; in Shaoxing, China, organized with NEPA and the Shaoxing Environmental Protection Bureau; and in Yemen. The Environmental Protection Agency of Victoria, Australia, hosted a regional conference in February 1992.

The third High-Level Cleaner Production Seminar was organized in Warsaw at the end of 1994.

National activities

Two new projects began in 1992 and will continue in 1993 and beyond: the NCPC project and the China NEPA/World Bank demonstration project.

The NCPC project will establish 20 centres in developing countries over a five-year period. Guided by IE/PAC and UNIDO, they will be responsible for raising awareness of cleaner production, collecting and disseminating information, providing technical assistance and conducting industry demonstration projects. In Phase I (through 1994), seven centres will be selected. All seven centres have finalized their official legal agreement with UNIDO and have started their activities. An NCPC guidance resource package was completed at the end of June 1995. The NCPCs will initiate cleaner production activities in their countries and build the capacity necessary to undertake industry demonstration projects. Phase I of the project has been funded by the Netherlands.

The China NEPA/World Bank project shows, through a series of 30 demonstrations, that cleaner production is a viable and important option for China. NEPA is allocating more than US\$ 20 million to the project. UNEP's IE/PAC carried out three missions to China and participating companies began implementing low- and no-cost production options. Even at this early stage, substantial economic benefits have been achieved. During the 1994 project demonstration phase, the Chinese Cleaner Production Audit Manual was tested and audits were carried out in 27 companies by Chinese experts trained during

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the project preparation phase. It is hoped that the China Cleaner Production project will serve as a model for other countries which have already expressed interest and for other bilateral World Bank activities.

2.2.2 Industrial Pollution Management

Industrial sector workshops

In June 1992, IE/PAC, in cooperation with WHO and the International Solid Waste and Public Cleansing Association (ISWA), held the second in a series of four workshops for West Asia on the subject "Landfill of hazardous industrial waste". Forty participants from ten countries attended the workshop. Participants from 10 countries took part in a regional workshop on training approaches in environmental management for industry, held jointly with WHO and ILO in Mauritius. IE/PAC presented the concept of environmental auditing at a workshop for South African Development Community countries on environmental management systems in mining, organized by the Carl Duisberg Gesellschaft and the United Nations Department for Development Services and Management Support (UN DDSMS). IE/PAC also assisted in organizing a Regional African Workshop on Environmental Management of Mining Sites, held in Zambia by the UN DDSMS and UNEP's Terrestrial Ecosystems Branch. The International Conference on Development, Environment and Mining was organized by UNEP, the World Bank, the United Nations Conference on Trade and Development (UNCTAD) and the International Council on Metals and the Environment (ICME), attended by more than 300 representatives from over 40 developing countries. In 1994, UNEP joined with WHO, UNIDO, ILO, the Dresden University of Technology and the International Academy of the Environment to organize the first European workshop on training approaches for environmental management in industry. With the Secretariat for the Basel Convention on Transboundary Movements of Hazardous Wastes and Their Disposal, ISWA and the Bulgarian Youth Ecological Club, IE/PAC ran a subregional training workshop in Bulgaria on industrial hazardous waste management in Eastern European countries. The workshop was attended by more than 30 participants from Governments, industry and local administrations. In 1995, a training workshop on training approaches for environmental management in industry was organized for Caribbean institutes and universities.

Publications

In 1992, IE/PAC and the Economic Commission for Latin America and the Caribbean (ECLAC) published a Spanish version of Hazardous Waste Policies and Strategies - A Training Manual. In 1992, IE/PAC began work with UNIDO on the production of a technical report on the electronics industry. The IE/PAC report Environmental Aspects of Wood Preservation addresses an important aspect of forestry operations, highlighted in Agenda 21. The report The Environmental Impact of Nickel Processing, provides an overview of production, technical, planning and management tools.

Other publications relate to the following technologies or industrial sectors:

- Metal finishing;
- Storage of hazardous materials;

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- Textile industry;
- Energy savings in the transport sector;
- Environmental management of mining sites.

2.2.3 APELL

The Awareness and Preparedness for Emergencies at Local Level (APELL) programme, launched in 1988 and developed with the support of the international chemical industry and Governments, aims to minimize the occurrence and impact of industrial accidents. It holds international and regional workshops to train people to implement the programme and disseminates information through a network of APELL focal points and regular publications. APELL is an ongoing process, designed to become a self-sustaining local programme "owned" by the people within the community. While seminars/workshops lay the groundwork for APELL programmes, IE/PAC provides ongoing support to help build local capacity and ensure the momentum of APELL programmes.

APELL focal points

Governments have nominated an APELL national focal point. IE/PAC provides APELL information to those focal points, which assure its dissemination to appropriate agencies in the country. They also keep IE/PAC informed of APELL-related activities in the country which IE/PAC can then follow up with APELL workshops.

APELL publications

The APELL Handbook is available in 19 languages. UNEP and OECD have jointly compiled and published the International Directory of Emergency Response Centres. APELL newsletters have appeared as supplements to the Industry and Environment Review. A large body of literature now exists on the subject of emergency preparedness. To ensure easier access to this information, IE/PAC, in cooperation with Environment Canada, released a compilation of references and abstracts of the most important publications in the field. Hazard Identification and Evaluation in a Local Community is a practical aid for local government, emergency services and industry. Appendix II refers to a number of other APELL publications.

APELL seminars/workshops

Formal APELL training was given through national seminars/workshops in Colombia and the Philippines and local seminars/workshops in Cubatao (Brazil) and Gabes (Tunisia). The first APELL regional workshop was held in Mexico City. It was adapted to the needs of Latin American and Caribbean countries, and was attended by representatives from 20 nations. In September 1991, a local APELL seminar/workshop was held in Izmit (Turkey). A national seminar/workshop for Tunisia was organized by the Institute for Health and Safety at Work in Tunis in October 1991. An APELL seminar/workshop in Moscow in December 1991 included presentations on pipeline security by representatives from the petroleum industry. It was attended by 110 local officials and representatives from government, industry and scientific institutes. A seminar/workshop for the Baltic States was held in Latvia,

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with support from the National Rescue Service Agencies and industry of Finland, Norway and Sweden, and the United States EPA. Local APELL seminar/workshops were held in India and Russian Federation.

Other APELL activities

The progress of the APELL programme was assessed at an expert advisory group meeting in Paris in December 1990. The group recommended the extension of APELL to other countries and the development of APELL-related activities to complement the programme. In 1994, an APELL Coordinating Group in Argentina started APELL education in local schools. As a follow-up to the 1993 Regional APELL Seminar/Workshop for Asia and the Pacific, nearly 1,000 people took part in an emergency response drill carried out at an industrial estate in Thailand. An APELL pilot project in Baranquilla (Colombia), developed a self-assessment system for industry, established links with the national system for emergency preparedness and response and carried out a public survey. Supported by IE/PAC and the United Nations Department of Humanitarian Affairs, the project highlights the importance of integrated planning in high-risk areas to prevent "combination disaster" - a technological accident triggered by a natural disaster.

2.2.4 EnTa

Government and industry decision makers must be aware of the potential global environmental impacts of the technology choices they make. In recognition of this and in response to a UNEP Governing Council recommendation, in 1993, IE/PAC launched the Environmental Technology Assessment (EnTa) programme within the framework of its CP programme. EnTa promotes the use of technology assessment as a tool for the development and application of environmentally sound technologies. It encourages cleaner production and discourages the use, especially in developing countries, of environmentally hazardous technologies and their wider, socially hazardous processes and products that encourage unsustainable consumption patterns.

EnTa Action Plan

The EnTa Advisory Group, established to provide expert advice on the development and implementation of the EnTa programme, met early in 1994. The Group comprises individuals from both developed and developing countries, with expertise in the field of environmental assessment and technology development, assessment and transfer. With their guidance, an EnTa work programme was launched for 1994-1996. Its initial focus will be on industrial manufacturing and processing technologies and on the particular requirements of developing countries. UNEP's new International Environmental Technology Centre (IETC), in Osaka (Japan) will now also contribute to EnTa activities in the field of urban and water technologies.

Publications

Raising awareness of the need for and value of environmental technology assessment is one of EnTa's primary tasks. The EnTa Newsletter, now published twice, keeps readers informed of developments in the field and provides them with a forum to communicate their activities to others. The EnTa Primer, currently under development, will outline practical approaches

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and suggestions on how to assess the environmental impacts of technologies, with special focus on the challenges faced by developing countries.

"Real-world" case studies

To illustrate the use of environmental technology assessment, EnTa has invited the submission of case studies from around the world to support future education efforts and training courses. This has not yet led to a publication.

2.2.5 Other IE/PAC Activities

Industrial outreach

An important component of IE/PAC's activities is its work on a broad range of issues concerning industry as a whole. IE/PAC organizes consultative meetings and publishes practical documents in partnership with industry, Governments and NGOs. Some of the main outputs of the industry outreach activities are outlined below.

Consultative meetings with industry and government representatives:

- The UNEP/ICC high-level meeting in New York, bringing together 40 Environment Ministers and industry executives from 24 countries;
- Annual meetings with industry and trade associations to discuss priorities for industry and for IE/PAC and for establishing cooperation;
- The workshop on sustainable consumption patterns gathered stakeholders from industry, Governments, consumer groups and environmentalists.

Production and dissemination of IE/PAC publications:

- The Industry and Environment Review, published quarterly, has a wide audience among industry and government representatives;
- The query-response service of IE/PAC responds to approximately 8,000 requests for documentation and technical information a year. To meet this growing demand, a database of national environmental regulations and guidelines is being developed.
- Publications of general interest include:
 - * Company Environmental Reporting, which profiles 100 corporate reporting pioneers and sets out 50 aspects for consideration when preparing an environmental report;
 - * From Regulations to Industry Compliance: Building Institutional Capabilities, aimed at facilitating companies' compliance with environmental regulations;
 - * Environmental Management Training Kits, under development with ICC, to be published by the end of 1995.

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Tourism

Agenda 21 cited the crucial role of tourism, one of the world's largest and fastest-growing industries, in promoting sustainable development. While many countries look to tourism for much needed economic development, it can also place great strains on natural resources and damage the tourist attraction itself - the environment. IE/PAC's Tourism programme, launched in 1991 as part of its sectoral activities, networks with industry, Governments, NGOs and other international organizations to assure the environmentally sustainable development and management of this burgeoning sector. IE/PAC has targeted its activities on key issues which are highlighted below.

Codes of conduct

Following its 1993 survey of and workshop on environmental codes of conduct for the tourism sector, in 1994 IE/PAC finalized a publication providing information on the value of codes, their content, development and implementation.

Tourism in sensitive areas

As a result of an ongoing joint project, UNEP and the UNESCO World Heritage Centre have produced a report on tourism in natural World Heritage Sites, which includes recommendations for tourism management in sensitive areas. The publication of case studies is now in preparation.

Hotel management

A "tool-kit" for the environmental management of hotels, jointly developed by IE/PAC, the International Hotels Association (IHA) and the International Hotels Environment Initiative (IHEI), was tested in three pilot regions in 1994. The tool-kit has now been finalized for publication in 1995 and will serve as a basis for enhanced environmental capacity-building throughout the sector.

2.3 Effectiveness of the IE/PAC programme activities

All interviewees agreed on the productivity of IE/PAC, especially with regard to the limited manpower and finances available.

Also, it is the evaluator's opinion that the IE/PAC programme has been very productive: with a minimum amount of manpower and financial budgets an important contribution has been made in all programme elements in developing and disseminating information and knowledge in all regions of the world.

The productivity of the programme is impressive in terms of:

- Publications developed;
- Training courses developed and organized;
- Seminars and workshops;

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- Cooperative networks and partnerships with industry and governmental organizations.

The quality of the material was, in general, considered good and properly addressed the needs and objectives of IE/PAC's target groups. IE/PAC's activities clearly addressed all priorities and long-term goals mentioned in UNEP Governing Council decision 16/25 (see introduction) with the exception of the transportation field.

Nevertheless, some products could have been more directed to specific target groups.

The Cleaner Production programme

The Advisory Group and almost all of the interviewees considered this an activity of high priority. IE/PAC should definitely continue its activities in this field and, if possible, strengthen this programme.

The productivity of the CP programme (number of publications, workshops and seminars, training activities and demonstration projects) has been very high.

Most of the CP activities were considered to be highly valuable within their field. In particular, the China demonstration project (implemented with the World Bank) and the UNEP/UNIDO NCPCs were mentioned as exemplary for future IE/PAC and CP activities. The involvement of local Chinese experts in the implementation of the CP project was mentioned as a major success factor.

The same is expected from the cooperative project with UNIDO, aimed at establishing NCPCs in a number of industrializing countries.

The role and contribution of cleaner production working groups has been rather limited. The CP programme has not been able to provide real support and coordination to the working groups. Therefore, the potential of the international working groups has not been fully realized. The evaluating team recommends a stronger involvement of the working groups and, in the near future, also of the NCPCs, in work programme development.

The evaluation team concludes that IE/PAC should focus on a limited number of long-term activities that include awareness-building, training programmes and/or demonstration projects. The main task of IE/PAC should be to coordinate/manage and guide these programmes without direct involvement in implementation.

APELL

All interviewees aware of the APELL programme underlined its necessity and effectiveness. The National Focal Points established are an effective method of continued information dissemination and awareness-building, adapted to national/local needs. Several respondents underlined the important impact the APELL programme had had and still has on the development and implementation of national emergency programmes.

The APELL guide is considered to be an appropriate document, containing

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all the information required to develop and implement national risk and emergency preparedness programmes. Its usefulness in training programmes in different countries has been well demonstrated.

EnTa:

The EnTa programme has not yet resulted in specific documents (guideline/manual) which have proven to be useful in local national applications. In view of the limited resources available (one part-time Professional staffer, limited general staff), high productivity could not be expected.

The evaluators suggest the involvement of more (international) experts in the implementation of this programme by organizing a specific working group in this field. UNEP should focus its input on organizing such activities and on raising additional funds from European countries. EnTa should focus more on cooperation with and provision of a Technology assessment methodology input into the CP programme.

Industrial Pollution Management

This programme has resulted in many industrial-sector-specific guidelines. The production of these guidelines involved cooperation with industrial sector organizations, technical experts and representatives from developing countries. These guidelines provide relevant and up-to-date environmental information and have proved their usefulness in awareness-building and information dissemination activities. The completed evaluation forms that were distributed with the guides showed really positive response. However, the number of responses was very limited, ranging from 20 to 50, depending on the specific guides. Most response came from public organizations (Governments, institutes). Industry accounted for less than 15 per cent of the response. Some of the recommendations given with the evaluation sheets are:

- Include more examples of developing countries;
- Provide more direct advice to regulators;
- Focus on smaller-scale industry;
- Include economic considerations;
- Include more information on cleaner production.

User comments indicate that only in a limited number of cases were the guides used in follow-up activities (workshops and training courses). The programme has now started to develop longer-term activities, including a sequence of actions according to the general IE/PAC approach, as described in section 2.1.

Industry outreach activities

Industry outreach activities have contributed to disseminating the IE/PAC message and approach. They also provided important back-up and feedback to

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IE/PAC, which contributed to programme development.

2.3.1 Effectiveness of changes in industrial practices

The IE/PAC programme deals only rarely with individual companies. The China project is the only larger-scale example of a project involving different companies. So, changes are mostly brought about in an indirect manner: through governmental organizations, industrial sector organizations and research institutes. This approach has certainly had positive effects.

Several interviewees underlined the effective method of information dissemination, combined with training activities.

IE/PAC works mainly through industrial sector organizations and Governments. Changes in industrial practices will depend on the effectiveness of national and regional information dissemination.

Some IE/PAC activities involved specific industries, leading to direct environmental improvements in participating companies:

- The China CP demonstration project:

In this project direct awareness-building and environmental improvement measures in Chinese industries took place. Information dissemination by NEPA will facilitate similar measures in other Chinese companies;

- The pulp and paper industry demonstration project in Egypt and Senegal provided CP audits in two paper factories. These projects resulted in several measures for improvement in these companies.

In particular, the NCPC project will bring IE/PAC closer to companies in several countries, thereby creating a sound basis for longer-term environmental awareness-building and industrial assistance in cleaner production.

The evaluation team is of the opinion that IE/PAC has been effective in realizing industrial environmental improvements. Nevertheless, many interviewees expressed their concern regarding the limited IE/PAC resources, stating that these should be increased as soon as possible in order to maintain its effectiveness.

Furthermore, the strong dependence on seconded staff is regarded as a potential risk of the near future, leading to a rather high rate of staff turnover with according loss of knowledge and expertise.

2.3.2 Contribution to the subprogramme's objectives

The activities developed and implemented by IE/PAC directly relate to its objectives as approved by the Governing Council in its decision 16/25, as reformulated by IE/PAC after UNCED.

The successful implementation of IE/PAC activities therefore directly

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contributes to the realization of the subprogramme's objectives.

2.3.3 Impact on Governments, business and industry

The following are statements by interviewees:

- IE/PAC has directly assisted in creating a dialogue between industry and Governments;
- The China project has led to direct policy development at the governmental level, integrating the cleaner production approach in industry-oriented environmental programmes. The IE/PAC approach led to the involvement of local expertise and the creation of a sound national basis for further implementation of cleaner production.

2.3.4 Strategies suitable for replication

General project approach

IE/PAC developed a general approach for the development and implementation of its programme objectives at the country or regional level. The following important steps are involved in the development of country or regional initiatives:

- Establish a shared vision among relevant stakeholders awareness-building;
- Develop information materials adapted to local or regional circumstances. This may be done by using available materials and adapting them through demonstration or pilot projects in companies. These projects will also assist in the identification of non-technical obstacles and constraints to the implementation of environmental strategies.
- Set up training programmes (train the trainers, industrial sector workshops) to further disseminate the materials and bring about transfer of knowledge and experience;
- Realize a long-term commitment of government and industry organizations to ensuring continuous efforts in this field.

This general approach has now been applied in some activities:

- The China CP programme: longer-term IE/PAC involvement in awareness-building, demonstration projects and training activities; cooperation between IE/PAC and the World Bank, together with NEPA;
- A number of APELL programmes in different countries.

This approach could be replicated in most other IE/PAC activities and probably also in other UNEP programmes.

Regional approach

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IE/PAC applies the following means to increase regional delivery and feedback:

- IE/PAC regional officers in UNEP's Regional Offices: The regional officers will be responsible for organizing and developing IE/PAC's Activities in their regions, in close cooperation with regional organizations;
- Within the CP programme a number of NCPC's are under development as part of cooperation with UNIDO.
- APELL works with National Focal Points in a number of countries.

As the regional officers have been appointed only recently and the NCPCs are still under development, little experience has been gained with these regional approaches.

Nevertheless, the regional approaches provide a strong basis for programme delivery and for feedback from those regions which may strengthen IE/PAC's activities and increase its effectiveness.

The experiences of the APELL National Focal Points showed that efficient and close communication links with these regional organizations and experts have to be established to ensure their optimal use. This also requires resources at IE/PAC to ensure effective response to the regional representatives and to maintain close communication.

International experts

The CP programme uses international working groups in different fields. The CP working groups create a vast potential of knowledge and expertise which has been insufficiently used until now. Some groups have been successful in providing useful information on cleaner production (textiles, pulp and paper, biotechnology others). However, this was mostly on a very temporary basis. Other groups have not been productive at all and lead a silent existence. The working group approach should be further developed and improved in order to:

- Create a longer-term potential of knowledge and expertise in specific fields of industry/environment;
- Provide direct assistance to the development and implementation of IE/PAC's activities;
- Develop case studies and other appropriate information on cleaner production which IE/PAC may use in its activities and disseminate further;
- Assist in fund-raising activities in different countries.

IE/PAC should put more effort into guiding the working groups and coordinating their activities.

The approach of setting up international working groups could very well be applied to other IE/PAC programmes (APELL, EnTa, Industrial Pollution Management, Tourism) to assist IE/PAC in organizing and implementing its

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activities.

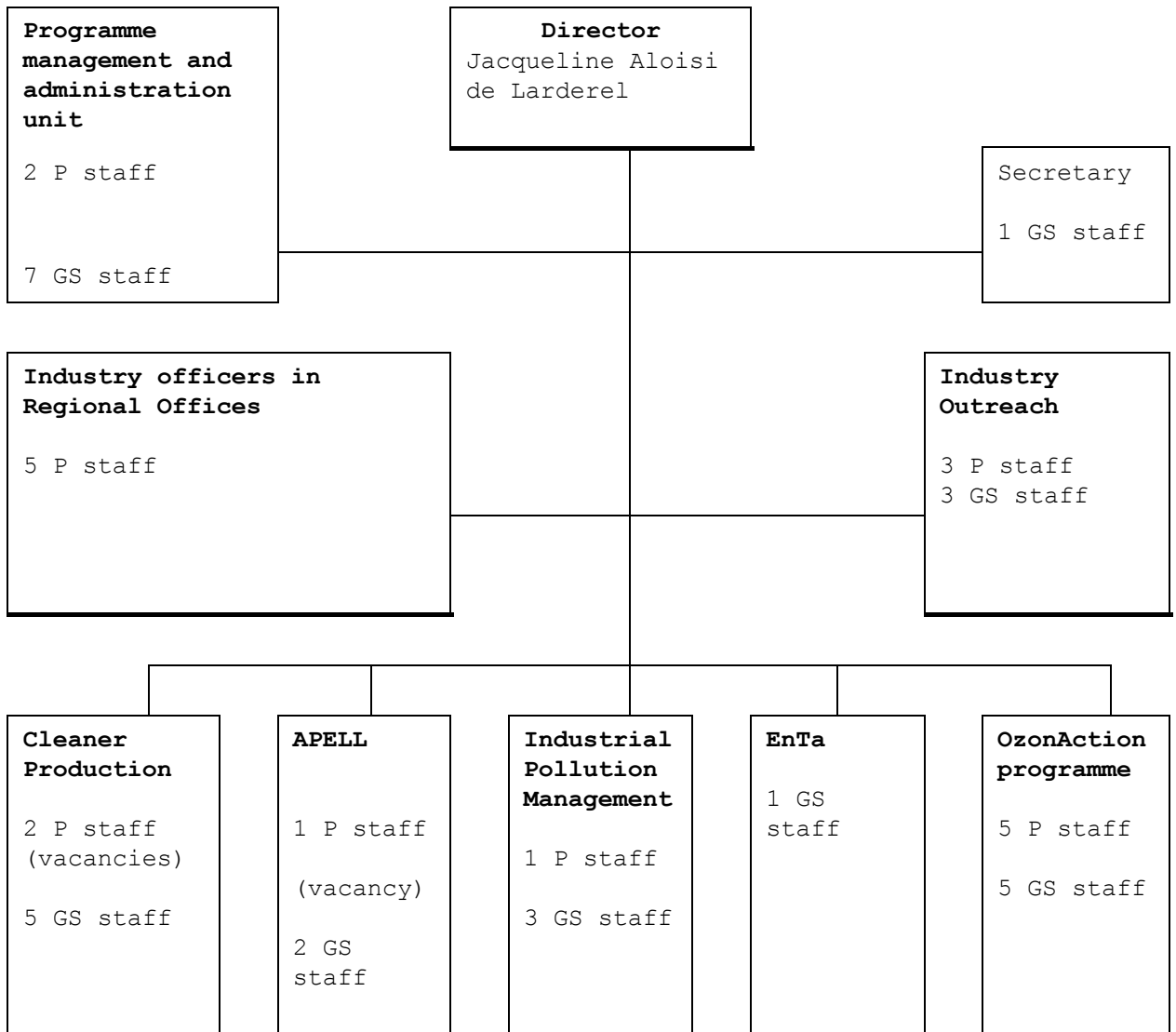
3. ORGANIZATIONAL STRUCTURE AND FINANCIAL MEANS

3.1 Programme Management

IE/PAC has at its disposal funds and manpower made available by UNEP and by secondment through Governments, international organizations and industries.

The organization of UNEP's IE/PAC is shown in Figure 1 below.

Figure 1: Organization of the UNEP IE office



The Programme Management and Administration Unit deals with all

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administrative matters, such as travel arrangements and costs, contracts, post, telephone, etc. The Unit has four vacancies (chief of unit, one P and two GS staff).

The Industry Outreach group deals with (almost) all the information dissemination activities of IE/PAC. It produces the Industry and Environment Review and the IE newsletter. The group organizes workshops and seminars. The group also takes care of IE/PAC's library.

The Regional Offices take care of the regional delivery of IE/PAC's outputs. At three offices (the Regional office for Latin America and the Caribbean (ROLAC), the Regional Office for Asia and the Pacific (ROAP), and the Regional Office for Europe (ROE)), full-time programme officers will be placed. At the Regional Office for West Asia (ROWA) and the Regional Office for Africa (ROA), part-time officers will be established. IE/PAC and the Regional Offices have jointly agreed on terms of reference for these programme officers.

The other groups/departments of IE/PAC are responsible for the development and implementation of specific subprogramme elements. Except for the OzonAction programme, which is not part of the present evaluation, these activities are described in more detail below.

The interviews with IE/PAC staff clearly indicated the following problems:

- Top-down and ad hoc management, partly due to lack of available resources (manpower, budget). Almost no opportunities to develop and maintain more strategic and longer-term activities;
- Almost continuous stress in developing activities, setting up partnerships, implementing projects and realizing outputs. This stress increases risks of reduced quality of outputs and changes in personnel (loss of experience and relations);
- Little internal cooperation between the different subprogramme elements.

3.2 Financial means

Table 3 below gives an overview of the financial means of IE/PAC over the period 1991 - 1995.

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Table 3: Overview of the financial means of IE/PAC over the period 1991-1995

	UNEP financing	External financing	UNEP staff		Seconded staff (man/years)	
General	Total for all programme activities	Funders	Amount	P	GS	P
	1991: 2,078,000	US, CEC, France, US/EPA, Netherlands:	270,000	5	9	3,5 DK, UK, France, ICA
	1992: 2,870,000	US, CEC, US/EPA, France:	320,000	6	11	3,5 DK, UK, France, ICA
	1993: 3,852,000	US, CEC, EPA, UK, France:	345,000	6	11	4,5 DK, UK, US ICA, France
	1994: 2,967,000	US, Norway, France Netherlands:	540,000	6	11	4,5 DK, UK, US, NL France, ICA
	1995: 3,164,000	US/EPA, CEC, France:	490,000	8	11	5,5 DK, UK, US NL, France

Until 1993, the programmes budgets show a regular increase. In 1994 and 1995 the budget was approximately 20 per cent lower than in 1993. If the number of P vacancies in 1995 is taken into account (3), the relative importance of seconded staff is even higher than suggested in the overview: approximately 50 per cent of IE/PAC's Professional staff were seconded.

The financial overview clearly shows the importance of external support to the IE/PAC programme: both through financial contributions and, even more, through seconded staff. The CP programme staffing has more seconded Professionals than UNEP staff.

Main observations

- Seconded staff were provided mainly by bilateral agreements with Governments: US/EPA, Denmark, the Netherlands and France. One Professional staff member was provided by an industrial-sector organization: The International Chemical Association (ICA). This latter support has recently come to an end.
- US/EPA provided assistance for the technology assessment activities. Denmark and the Netherlands for the CP programme.

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- In most of the programmes (APELL, CP and Industrial Sectors) the number of UNEP Professional staff is below the minimum requirement. Minimal requirements are met only thanks to secondment from several countries.

3.3 Effectiveness of IE/PAC programme management

Organizational structure:

IE/PAC has a relatively large number of small units. Only the OzonAction programme unit has a reasonable number of staff, with a good mix of Professional and General Service staff.

However, the other programmes have only a limited number of Professional staff at their disposal. Some units have only one, despite the fact that these units are responsible for some of the main programmes (CP, APELL, Industrial Sector programme). Up until now the APELL programme did not have a UNEP Professional staff member to coordinate activities. This programme depended completely on seconded staff provided by ICA.

The CP programme, EnTa and the Industrial Sector programme all depend to a great extent on seconded staff provided by different countries.

The evaluation team considers the professional staffing of IE/PAC's departments to be subcritical. Only thanks to support in kind, has IE/PAC been able to provide its outputs. For the longer-term continuation of IE/PAC's activities the number of staff should be increased in order to ensure continuity in available knowledge and expertise and to further improve and develop its activities.

IE/PAC financial means

It is the evaluator's opinion that UNEP Professional staff should at least meet minimal requirements to ensure the effective implementation of IE/PAC activities. Secondment should provide additional assistance, enabling the development and implementation of new activities.

Many countries do not as yet support the IE/PAC programme. In view of the relative importance that most Western European countries now attach to CP and technology transfer activities, IE/PAC should be able to raise additional funding from countries such as Austria, Finland, Germany, Norway and Sweden, and bodies such as the European Commission. The evaluation team realizes that fund-raising also requires available manpower and a minimum number of UNEP staff to develop and maintain long-term relationships with funding organizations.

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4. PROBLEMS, CONSTRAINTS AND SUCCESSES ENCOUNTERED

The evaluation team identified a number of problems and constraints during the interviews with IE/PAC internal staff and external experts. The main problems and constraints refer to:

- Lack of manpower and resources. Currently available resources are subcritical: without measures, the IE/PAC programme risks losing its international position;
- Strong dependency on external initiatives and support in kind from different Governments and organizations.

Other (minor) problems are related to:

- Insufficient involvement of cleaner production working groups in CP programme planning and priority-setting;
- Insufficient coordination and cooperation between IE/PAC's programme elements.

These problems are strongly interrelated: no strategy development and priority-setting without sufficient resources; regular loss of expertise because of dependency on temporary support, etc.

These problems and constraints are dealt with in more detail in the following chapters.

4.1 IE/PAC's work programme

The Advisory Group meeting on the post-UNCED IE/PAC policy/strategy reached conclusions on a number of strengths and weaknesses, opportunities and threats. Based on these observations, and including comments and suggestions received during the evaluation, the evaluation team developed the analysis shown in Table 4 below.

This Advisory Group recommended that IE/PAC should develop a stronger vision and/or core theme as a first priority, based on the following criteria:

- Essential to IE/PAC's overall approach (fitting in with the above IE/PAC goals);
- Not already being carried out effectively or to the required extent by another organization;
- Already underway by IE/PAC, with every indication that it will be successful;
- Able to obtain the necessary critical mass of resources needed;
- Not something that others could be encouraged to carry out with IE/PAC's guidance or support.

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Table 4: Analysis of IE/PAC

Strengths	Weaknesses
<ol style="list-style-type: none"> 1. Credibility: IE/PAC has a high level of credibility with industry, unique among United Nations bodies. 2. Influence: its credibility enables IE/PAC to influence decision-making in industry, Governments and environmental groups. 3. Efficiency: high level of activity, despite small size. 4. Catalysis: strong reputation for catalysis between industries, NGOs and Governments. 5. Capacity and expertise: strong internal expertise and worldwide expert networks. 6. Flexibility: large capacity for incorporating new developments into the IE/PAC work programme. 7. Uniqueness: no other international organizations really competing in IE/PAC's field. 	<ol style="list-style-type: none"> 1. Difficulty in reaching industry in developing countries and SME's. 2. Too weak relations with UNEP Regional Offices and other UN agencies. 3. Insufficient capacity for sufficient promotion of IE/PAC activities, thus reducing influence on other organizations. 4. Lack of measurable targets concerning what IE/PAC wants to achieve. 5. Lack of clear and visible criteria to select its priorities. 6. Too low basic UNEP funding for achieving programme goals: too great a dependence on (in kind) support from other organizations and Governments.
Opportunities	Threats
<ol style="list-style-type: none"> 1. Fostering Agenda 21 implementation: integrating environment into development. 2. Building management, institutional capacity and partnerships, also with other international organizations. 3. Technology transfer and technology assessment directed towards developing countries. 4. Influencing change in consumption and production values and patterns. 	<ol style="list-style-type: none"> 1. Insufficient awareness and cooperation within the UNEP organization of IE/PAC's role and strategy. 2. Competition with other international organizations (UNIDO, OECD, etc.). 3. Lack of internal capacity (manpower and financial) to sustain a minimum level of activity. 4. Competition with the Regional Office for Europe (ROE) in the

5. Industry-related aspects of environmental economics: environmental accounting, performance indicators, economic instruments, trade issues.	field of sustainable consumption.
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Based on the above and comments from interviewees, the evaluation team identified the following target groups and developed a priority rating:

	Organization	Priority	Tasks
Industrialized countries	Governments	low	Involvement of Governments and industries should concentrate on funding and providing expertise and information.
	industrial-sector organizations	medium	
	industries:		
	• Large companies	low	
	• SMEs	medium	
Newly Industrializing countries and countries with economies in transition	Governments:	high	Development of expertise among Governments and industries; developing infrastructure;
	industrial sector organizations:	high	
	industries:		
	• large companies:	high	
	• SMEs	high	
Developing countries	Governments:	medium	For SMEs adapted information/expertise required, not yet available at IE/PAC.
	industrial sector organizations	high	
	industries:		
	• large companies:	high	
	• SMEs	medium	

On the basis of such criteria and priorities IE/PAC should develop a coherent strategy and programme of activities. The development of the work programme should involve clients and target groups, IE/PAC's working groups, NCPCs and other regional organizations. This programme could then serve as the starting point for identifying the resources required to carry out such programmes successfully and effectively.

4.2 IE/PAC's structure

IE/PAC's structure is characterized by:

- Insufficient professional manpower within the office: compared with the OzonAction programme for example, the other IE/PAC programmes have a very limited basic staff (see Figure 1). The APELL, Cleaner Production and Industrial Pollution Management programmes have relatively high priority

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within UNEP (see several UNEP/GC decisions and Agenda 21 recommendations), have a similar complexity and outreach but have considerably less UNEP support (manpower and funding).

- Fragmented internal organization: the different IE/PAC programmes are implemented by several small groups. Optimal communication and cooperation between these programmes could increase IE/PAC's effectiveness.
- Strong dependency on seconded professional staff, which should be reduced by increasing UNEP-funded professional staff in IE/PAC: seconded staff are provided/financed by Governments or industries and sometimes have very detailed and specific assignments. IE/PAC cannot build upon seconded staff for basic internal tasks.
- Insufficient budget: this is related to the current manpower situation. In this respect also, IE/PAC's programmes have significantly lower budgets than the OzonAction programme. IE/PAC runs APELL, Cleaner Production and Industrial Pollution Management with a lower budget than OzonAction has available on its own.

5. CONCLUSIONS AND RECOMMENDATIONS

Due to restricted manpower and funding, IE/PAC has been obliged to develop a working method which enables it to produce sufficient outputs despite limited resources. This method is characterized by:

- Partnerships with other international organizations and Governments. Although international cooperation is, of course, recommended, IE/PAC has become too strongly dependent on initiatives of other organizations. Limited resources make it almost impossible for IE/PAC to develop its own activities and programmes;
- A general strategy with less immediate focus on UNEP priorities, enabling IE/PAC to participate in upcoming initiatives of other organizations (flexibility);
- Great breadth of activities which means less depth and less focus.

As a result of this situation the following conclusions are made:

General conclusions

1. IE/PAC proves to be a very productive group, producing an impressive number of relevant, industry-oriented outputs with a minimum of resources. IE/PAC outputs are of high quality and are appreciated by representatives from industry, Governments, environmental organizations and other stakeholders.

Taking available resources into account, IE/PAC clearly addresses its main goals and objectives in its activities and has made important contributions to changing industrial practices and developing governmental policies.

IE/PAC is considered to be a highly valued body and an important agent in its field. Several interviewees from governmental and industrial

Organizations considered IE/PAC to be an outstanding body, especially when compared with other United Nations and UNEP bodies.

2. IE/PAC's productivity is even more impressive when available resources are taken into account: the number of current staff and UNEP funding may be considered subcritical. This is one of the main reasons why the internal organization of IE/PAC is rather fragmented:

- * Insufficient resources (manpower, funds) to perform a minimum number of activities and maintain sufficient and adequate relationships in the industrial environmental network;
- * Strong dependency on seconded Professional-level staff with well-defined and focused terms of reference. Seconded staff have temporary assignments leading to regular loss of knowledge, experience and network.

Lack of resources is also one of the main causes for insufficient internal cooperation between IE/PAC programmes. The effectiveness of IE/PAC could

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be improved by increased internal communication and by the development of integrated efforts.

3. IE/PAC has developed a strategic programme on the basis of its main goals and objectives. However, this programme is of a rather general nature. The evaluation team concludes that this is a deliberate choice by IE/PAC management, forced by available - restricted - manpower and funding. The current strategy is used mainly as a guideline to decide upon participation in projects, activities and opportunities offered by outside stakeholders such as other international organizations, industries, Governments, etc. This leads to the rather ad hoc nature of IE/PAC's portfolio of activities and projects. Only in a very limited number of cases has IE/PAC been able to develop a longer-term (1- to 2-year) programme in which awareness-building, material development, training courses and information dissemination follow up in a logical sequence.

Due to the above-mentioned lack of resources, IE/PAC's programme depends too much on initiatives from other organizations. By setting more specific and focused priorities, IE/PAC could increase its effectiveness.

Conclusions concerning IE/PAC's programmes

4. The CP programme has carried out a wide range of activities and realized an impressive number of outputs (training courses, publications, demonstration projects, workshops and seminars).

This programme, in particular, depends on seconded staff. Until recently, the CP programme had no UNEP Professional staff!

IE/PAC's CP programme is internationally considered to be the main programme for dissemination of information on cleaner production and transfer of knowledge and technology to developing countries.

5. The APELL programme is also considered to be one of the main international programmes in the field of emergency preparedness. The quality of its products (guideline, training courses) justifies increased efforts in information dissemination. The number of APELL training courses and demonstration activities should be increased.
6. The Industrial Pollution Management programme has also been productive by developing a number of industrial sector technical guidelines and organizing workshops and training courses.

However, not all guidelines are well-focused on clear target groups (industry, SMEs in developing countries, etc.).

There are no specific conclusions concerning the other IE/PAC programme elements (EnTa, Tourism, Industry Outreach). The general conclusions already refer sufficiently to these activities.

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Recommendations

Strategy development

Develop a longer-term IE/PAC strategy in the field of industrial environmental management, incorporating the current programmes. On the basis of such a strategy, a work programme, including required manpower and UNEP-funding, can be formulated. The evaluation team concluded that the current available IE/PAC resources are insufficient to maintain an effective programme of activities.

The evaluation team recommends an increase in manpower and resources up to a level comparable with the OzonAction programme resources. This would roughly mean a doubling of the number of Professional staff and of IE/PAC's budget. An important element of IE/PAC's programme should be to have at least 50 per cent of its activities developed independently of the activities of other organizations. The implementation of these activities should, of course, also involve international cooperation with appropriate organizations.

As part of this strategy development, a survey should be carried out on the positioning of UNEP among other international organizations and their responsibilities, tasks and programmes.

Internal management

Create a stronger basis for internal coordination and management within IE/PAC by improved integration of the different programme activities:

- Cleaner Production;
- Industrial Pollution Management;
- APELL;
- EnTa;
- Tourism;
- Industrial Outreach.

This integration may be realized by assigning an internal coordination task to one of the programme coordinators.

Such internal coordination will also stimulate individual IE/PAC staff members to contribute more intensively to the further development of the work programme, to exchange experiences and thus improve the programme's outputs (quality improvement).

External advice

An Industry and Environment Advisory Group should be set up to assist IE/PAC in the implementation of its tasks. This group may be organized by combining the Cleaner Production Core Group with some of the other regular or ad hoc advisory groups of IE/PAC programmes.

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Care should be taken to ensure regular renewal of the advisory group in line with - expected - new directions in the content of the work programme.

Working groups, NCPCs, different target groups, especially from developing countries, should be better involved in work programme development.

Programme elements

The above recommendations refer to IE/PAC as a whole. Based on comments received from the interviewees, the team developed the following recommendations on specific programme elements:

1. IE/PAC already organized a successful workshop on "Sustainable consumption". In view of the direct links between sustainable production and sustainable consumption, the team recommends direct cooperation between IE/PAC and UNEP's Regional Office for Europe in Geneva, now in charge of developing a Sustainable consumption programme. We recommend putting both programmes (Sustainable production and Sustainable consumption) together in one UNEP activity.
2. Communication links between IE/PAC's APELL programme and national focal points should be improved.

APPENDIX I: LIST OF INTERVIEWEES

1. Mr. Larry Kohler ILO
2. Mr. Michel Mercier WHO
3. Mr. Nick Anderson World Bank
4. Prof. Ruqiu Ye National Environmental Protection Agency (NEPA), China
5. Ms. Wang Ji NEPA
6. Mr. Harvey Yakowitz OECD
7. Ms. Isabel Viana
8. Mr. John Lemlin International Petroleum Industry Environmental Protection Organization (IPIECA)
9. Dr. K.C. Gupta National Safety Council (NSC)
10. Dr. A. Maturana Palacios Oficina Nacional de Emergencia del Ministerio del Interior (ONEMI), Chile
11. Dr. O.A. El-Kholy Egypt
12. Mr. Peter Peterson International Register of Potentially Toxic Chemicals (IRPTC)
13. Mr. K.P. Nyati C.I.I.
14. Ms. Denise O'Brien ICC
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- 27. Ms. Nancy Bennett UNEP IE/PAC
- 28. Mr. John Kryger UNEP IE/PAC
- 29. Mr. Sybren de Hoo UNEP IE/PAC
- 30. Mr. Kim Cristiansen Krüger Consult AS
- 31. Mr. Abaza UNEP EEU
- 32. Prof. Soermarmoto World Business Council for Sustainable
Development (WBCSD), Indonesian Chapter
- 33. Mr. J.E. Slater International Maritime Organization (IMO)
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APPENDIX III: TERMS OF REFERENCE

Background

The production, transport, conversion and use of energy have already caused serious environmental problems. While forecasts of supply and consumption of energy vary, some energy-related problems are likely to become more serious and widespread in the future.

Industry and energy issues are essential to the quality of life of nations and peoples without compromising that of future generations. Agenda 21 and the System-Wide Medium-term Environment Programme 1990-1995 both identify business and industry as playing crucial roles in the social and economic development of countries. Similarly, the Governing Council of UNEP has reiterated on several occasions its commitment to resolving the environmental impact of industry and energy.

Scope of evaluation

This evaluation is a requirement of the Central Evaluation Unit of United Nations Headquarters in New York. The evaluation is to be conducted in August-September 1995 and finalized for submission to New York in October 1995. The evaluation will involve extensive information gathering through interviews and reviewing documentation at UNEP's energy and industry centres in Paris, the Industry and Environment Programme Activity Centre and the Energy Unit at UNEP Headquarters in Nairobi.

Terms of reference for the Industry and Environment subprogramme evaluation:

- (i) Determine the effectiveness of the Industry subprogramme in relation to the mandate and objectives of UNEP through reviewing the subprogramme legislative authority and the rationale on which the programme was created.
- (ii) Examine the effectiveness of the Industry subprogramme by reviewing the development, promotion and/or implementation of industrial policies and strategies, including:
 - Assessing the Cleaner Production programme in collecting and disseminating information on technologies, policies and management tools through publications and computerized networks; training; supporting pilot demonstration projects; and contributing to capacity-building and sound technology transfer through the establishment of National Cleaner Production Centers in a number of developing countries.
 - Assessing the effectiveness of the Awareness and Preparedness for Emergencies at Local Level (APELL) programme in accident prevention and emergency preparedness.
- (iii) Analyse the effectiveness of the changes in industrial practices brought about by the subprogramme activities in promoting technologies, practices and management systems that make efficient use of the natural resources.

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- (iv) Review how projects undertaken contribute to the attainment of the subprogramme's overall objectives.
- (v) Determine the impact of the subprogramme activities on Governments, business and industry in the definition and implementation of sustainable industrial policies and strategies.
- (vi) Review the appropriateness of activities undertaken by the subprogramme for pollution control and environmental management in industrial sectors.
- (vii) Identify the strategies employed by the subprogramme which are suitable for replication.
- (viii) Review the effectiveness of the organizational structures of the subprogramme through investigating the staffing and administrative arrangements and operational mechanisms with emphasis on its coordination process within UNEP, other United Nations bodies, government agencies, NGO's and other international organizations.
- (ix) Study the problems/successes and issues affecting the delivery of the subprogramme and propose suggestions needed to improve the functioning and productivity of the subprogramme.
- (x) Produce concrete recommendations for the future improvement of the subprogramme.
- (xi) Identify lessons learnt through the evaluation of the subprogramme's activities and outputs.

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